

8/B

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<110> Sherman, D.H.
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Zhao, L.

<120> DNA encoding methymycin and pikromycin

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<140> US 09/988,384

<141> 2001-11-19

<150> PCT/US99/14398

<151> 1999-06-25

<150> US 09/105,537

<151> 1998-06-26

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 50 55 60
 Leu Asp Ser Leu Asp Leu Phe Asp Ala Ala Phe Phe Gly Ile Ser Pro
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Thr	Ala	Phe	Asp	Ala	Val	Ala	Ala	Glu	Leu	Asp	Pro	Leu	Leu	Asp	Arg	
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His	Val	Gly	Ala	Val	Arg	Val	Glu	Glu	Leu	Thr	Leu	Glu	Ala	Pro	Leu	2005	2010	2015
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Gly	Ala	Asp	Thr	Leu	Ala	Glu	Ile	Arg	Leu	Pro	Ala	Ala	Gln	His	Glu	2130	2135	2140	
Ser	Ala	Gly	Leu	Phe	Gly	Val	His	Pro	Ala	Leu	Leu	Asp	Ala	Ala	Leu	2145	2150	2155	2160
His	Pro	Ile	Val	Leu	Glu	Gly	Asn	Ser	Ala	Ala	Gly	Ala	Cys	Asp	Ala	2165	2170	2175	
Asp	Thr	Asp	Ala	Thr	Asp	Arg	Ile	Arg	Leu	Pro	Phe	Ala	Trp	Ala	Gly	2180	2185	2190	
Val	Thr	Leu	His	Ala	Glu	Gly	Ala	Thr	Ala	Leu	Arg	Val	Arg	Ile	Thr	2195	2200	2205	
Pro	Thr	Gly	Pro	Asp	Thr	Val	Thr	Leu	Arg	Leu	Thr	Asp	Thr	Thr	Gly	2210	2215	2220	
Ala	Pro	Val	Ala	Thr	Val	Glu	Ser	Leu	Thr	Leu	Arg	Ala	Val	Ala	Lys	2225	2230	2235	2240
Asp	Arg	Leu	Gly	Thr	Thr	Ala	Gly	Arg	Val	Asp	Asp	Ala	Leu	Phe	Thr	2245	2250	2255	
Val	Val	Trp	Thr	Glu	Thr	Gly	Thr	Pro	Glu	Pro	Ala	Gly	Arg	Gly	Ala	2260	2265	2270	
Val	Glu	Val	Glu	Glu	Leu	Val	Asp	Leu	Ala	Gly	Leu	Gly	Asp	Leu	Val	2275	2280	2285	
Glu	Leu	Gly	Ala	Ala	Asp	Val	Val	Leu	Arg	Ala	Asp	Arg	Trp	Thr	Leu	2290	2295	2300	
Asp	Gly	Asp	Pro	Ser	Ala	Ala	Ala	Arg	Thr	Ala	Val	Arg	Arg	Thr	Leu	2305	2310	2315	2320
Ala	Ile	Val	Gln	Glu	Phe	Leu	Ser	Glu	Pro	Arg	Phe	Asp	Gly	Ser	Arg	2325	2330	2335	
Leu	Val	Cys	Val	Thr	Arg	Gly	Ala	Val	Ala	Ala	Leu	Pro	Gly	Glu	Asp	2340	2345	2350	
Val	Thr	Ser	Leu	Ala	Thr	Gly	Pro	Leu	Trp	Gly	Leu	Val	Arg	Ser	Ala	2355	2360	2365	
Gln	Ser	Glu	Asn	Pro	Gly	Arg	Leu	Phe	Leu	Leu	Asp	Leu	Gly	Glu	Gly	2370	2375	2380	
Glu	Gly	Glu	Arg	Asp	Gly	Ala	Glu	Glu	Leu	Ile	Arg	Ala	Ala	Thr	Ala	2385	2390	2395	2400
Gly	Asp	Glu	Pro	Gln	Leu	Ala	Ala	Arg	Asp	Gly	Arg	Leu	Leu	Ala	Pro	2405	2410	2415	
Arg	Leu	Ala	Arg	Thr	Ala	Ala	Leu	Ser	Ser	Glu	Asp	Thr	Ala	Gly	Gly	2420	2425	2430	
Ala	Asp	Arg	Phe	Gly	Pro	Asp	Gly	Thr	Val	Leu	Val	Thr	Gly	Gly	Thr	2435	2440	2445	
Gly	Gly	Leu	Gly	Ala	Leu	Leu	Ala	Arg	His	Leu	Val	Glu	Arg	His	Gly	2450	2455	2460	
Val	Arg	Arg	Leu	Leu	Leu	Val	Ser	Arg	Arg	Gly	Ala	Asp	Ala	Pro	Gly	2465	2470	2475	2480
Ala	Ala	Asp	Leu	Gly	Glu	Asp	Leu	Ala	Gly	Leu	Gly	Ala	Glu	Val	Ala	2485	2490	2495	
Phe	Ala	Ala	Ala	Asp	Ala	Ala	Asp	Arg	Glu	Ser	Leu	Ala	Arg	Ala	Ile	2500	2505	2510	
Ala	Thr	Val	Pro	Ala	Glu	His	Pro	Leu	Thr	Ala	Val	Val	His	Thr	Ala	2515	2520	2525	
Gly	Val	Val	Asp	Asp	Ala	Thr	Val	Glu	Ala	Leu	Thr	Pro	Glu	Arg	Leu	2530	2535	2540	
Asp	Ala	Val	Leu	Arg	Pro	Lys	Val	Asp	Ala	Ala	Trp	Asn	Leu	His	Glu	2545	2550	2555	2560

Leu Thr Lys Asp Leu Arg Leu Asp Ala Phe Val Leu Phe Ser Ser Val
 2565 2570 2575
 Ser Gly Ile Val Gly Thr Ala Gly Gln Ala Asn Tyr Ala Ala Ala Asn
 2580 2585 2590
 Thr Gly Leu Asp Ala Leu Ala Ala His Arg Ala Ala Thr Gly Leu Ala
 2595 2600 2605
 Ala Thr Ser Leu Ala Trp Gly Leu Trp Asp Gly Thr His Gly Met Gly
 2610 2615 2620
 Gly Thr Leu Gly Ala Ala Asp Leu Ala Arg Trp Ser Arg Ala Gly Ile
 2625 2630 2635 2640
 Thr Pro Leu Thr Pro Leu Gln Gly Leu Ala Leu Phe Asp Ala Ala Val
 2645 2650 2655
 Ala Arg Asp Asp Ala Leu Leu Val Pro Ala Gly Leu Arg Pro Thr Ala
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 His Arg Gly Thr Asp Gly Gln Pro Pro Ala Leu Trp Arg Gly Leu Val
 2675 2680 2685
 Arg Ala Arg Pro Arg Arg Ala Ala Arg Thr Ala Ala Glu Ala Ala Asp
 2690 2695 2700
 Thr Thr Gly Gly Trp Leu Ser Gly Leu Ala Ala Gln Ser Pro Glu Glu
 2705 2710 2715 2720
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 Leu Gly His Ala Asp Ser Ala Ala Val Gly Ala Glu Arg Ser Phe Lys
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 Pro Ser Pro Ala Ala Leu Ala Ser His Leu Leu Ala Gln Val Pro Gly
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 Gly Met Ala Cys Arg Tyr Pro Gly Gly Val Ser Ser Pro Glu Asp Leu
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 Trp Arg Leu Val Ala Glu Gly Thr Asp Ala Ile Ser Glu Phe Pro Val
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 Asn Arg Gly Trp Asp Leu Glu Ser Leu Tyr Asp Pro Asp Pro Glu Ser
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 Lys Gly Thr Thr Tyr Cys Arg Glu Gly Gly Phe Leu Glu Gly Ala Gly
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 Gln Lys Gly Leu Ala Ala Asp Gly Arg Cys Lys Ala Phe Ser Ala Ala
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 Arg Leu Ser Asp Ala Arg Arg Ala Gly His Thr Val Leu Gly Leu Val
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 Lys Ser Asn Ile Gly His Ala Gln Ala Ala Ala Gly Val Gly Gly Val
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 3265 3270 3275 3280
 Trp Val Val Ser Gly Arg Asp Glu Pro Ala Leu Arg Ser Gln Ala Arg
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 Ser Gly Ala Gly Val Trp Gly Ser Ala Gly Gln Gly Ala Tyr Ala Ala
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 4115 4120 4125
 Leu Pro Ala Thr Ser Ile Ala Trp Gly Val Trp Gly Gly Gly Met
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 Pro Met Ala Pro Val Ser Ala Leu Arg Ala Met Ala Thr Ala Ile Ala
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 Ser Gly Glu Pro Cys Pro Thr Val Thr His Thr Asp Trp Glu Arg Phe
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 Leu Asp Asp Pro Ala Glu Val Ala Glu Gly Glu Arg Phe Pro Ala Met
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 Gly Phe Asp Ser Leu Ala Thr Val Arg Leu Arg Arg Gly Leu Ala Ser
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 Ala Thr Gly Leu Asp Leu Pro Pro Asp Leu Leu Phe Asp Arg Asp Thr
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 Pro Ala Ala Leu Ala Ala His Leu Ala Glu Leu Leu Ala Thr Ala Arg
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 Asp His Gly Pro Gly Gly Pro Gly Thr Gly Ala Ala Pro Ala Asp Ala
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 Val Leu Leu Gly His Ser Ala Gly Ala Asn Met Ala His Ala Leu Thr
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 Asp Ile Tyr Thr Pro Ala Asp Pro Gly Ala Met Gly Val Trp Arg Asn
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 His Arg Leu Thr Ala Met Gly Ala Tyr His Arg Leu Leu Asp Trp
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Ser Pro Thr Pro Val Arg Ala Pro Val Leu His Leu Arg Ala Ala Glu
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Pro Met Gly Asp Trp Pro Pro Gly Asp Thr Gly Trp Gln Ser His Trp
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Asp Gly Ala His Thr Thr Ala Gly Ile Pro Gly Asn His Phe Thr Met
4580 4585 4590
Met Thr Glu His Ala Ser Ala Ala Arg Leu Val His Gly Trp Leu
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Ala Glu Arg Thr Pro Ser Gly Gln Gly Gly Ser Pro Ser Arg Ala Ala
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Ala Val Val Tyr Arg Asn Asp Val Leu Glu Leu Ile Gln Tyr Lys Pro
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Ile Asn Lys Phe Tyr Val Phe Asp Leu Ser Pro Glu Lys Ser Leu Ala
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Leu Val Gly His Tyr Ala Ala Leu Gly Glu Asn Lys Val Asn Ala Leu
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Thr Leu Leu Val Ser Val Leu Asp Thr Thr Met Asp Asn Gln Val Ala
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Gln Ala Gly Val Leu Glu Gly Ser Glu Met Ala Lys Val Phe Ala Trp
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Met Arg Pro Asn Asp Leu Ile Trp Asn Tyr Trp Val Asn Asn Tyr Leu
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<212> PRT

<213> *Streptomyces venezuelae*

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Ala	Val	Val	Ser	Met	Phe	Ser	Ser	Val	Gly	Tyr	Leu	Lys	Thr	Thr	Glu		
						935					940						
Glu	Leu	Gly	Ala	Ala	Val	Ala	Ser	Phe	Ala	Glu	His	Leu	Glu	Pro	Gly		
945					950					955					960		
Gly	Val	Val	Val	Val	Glu	Pro	Trp	Trp	Phe	Pro	Glu	Thr	Phe	Ala	Asp		
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Gly	Trp	Val	Ser	Ala	Asp	Val	Val	Arg	Asp	Gly	Arg	Thr	Val	Ala			
		980						985				990					
Arg	Val	Ser	His	Ser	Val	Arg	Glu	Gly	Asn	Ala	Thr	Arg	Met	Glu	Val		
		995					1000					1005					

His Phe Thr Val Ala Asp Pro Gly Lys Gly Val Arg His Phe Ser Asp
 1010 1015 1020
 Val His Leu Ile Thr Leu Phe His Gln Ala Glu Tyr Glu Ala Ala Phe
 1025 1030 1035 1040
 Thr Ala Ala Gly Leu Arg Val Glu Tyr Leu Glu Gly Gly Pro Ser Gly
 1045 1050 1055
 Arg Gly Leu Phe Val Gly Val Pro Ala Met Thr Gly Lys Thr Arg Ile
 1060 1065 1070
 Pro Arg Val Arg Arg Gly Arg Thr Pro Arg Ala Phe Thr Leu Ala
 1075 1080 1085
 Val Val Gly Thr Leu Leu Ala Gly Thr Thr Val Ala Ala Ala Pro
 1090 1095 1100
 Gly Ala Ala Asp Thr Ala Asn Val Gln Tyr Thr Ser Arg Ala Ala Glu
 1105 1110 1115 1120
 Leu Val Ala Gln Met Thr Leu Asp Glu Lys Ile Ser Phe Val His Trp
 1125 1130 1135
 Ala Leu Asp Pro Asp Arg Gln Asn Val Gly Tyr Leu Pro Gly Val Pro
 1140 1145 1150
 Arg Leu Gly Ile Pro Glu Leu Arg Ala Ala Asp Gly Pro Asn Gly Ile
 1155 1160 1165
 Arg Leu Val Gly Gln Thr Ala Thr Ala Leu Pro Ala Pro Val Ala Leu
 1170 1175 1180
 Ala Ser Thr Phe Asp Asp Thr Met Ala Asp Ser Tyr Gly Lys Val Met
 1185 1190 1195 1200
 Gly Arg Asp Gly Arg Ala Leu Asn Gln Asp Met Val Leu Gly Pro Met
 1205 1210 1215
 Met Asn Asn Ile Arg Val Pro His Gly Gly Arg Asn Tyr Glu Thr Phe
 1220 1225 1230
 Ser Glu Asp Pro Leu Val Ser Ser Arg Thr Ala Val Ala Gln Ile Lys
 1235 1240 1245
 Gly Ile Gln Gly Ala Gly Leu Met Thr Thr Ala Lys His Phe Ala Ala
 1250 1255 1260
 Asn Asn Gln Glu Asn Asn Arg Phe Ser Val Asn Ala Asn Val Asp Glu
 1265 1270 1275 1280
 Gln Thr Leu Arg Glu Ile Glu Phe Pro Ala Phe Glu Ala Ser Ser Lys
 1285 1290 1295
 Ala Gly Ala Ala Ser Phe Met Cys Ala Tyr Asn Gly Leu Asn Gly Lys
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 Pro Ser Cys Gly Asn Asp Glu Leu Leu Asn Asn Val Leu Arg Thr Gln
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 Trp Gly Phe Gln Gly Trp Val Met Ser Asp Trp Leu Ala Thr Pro Gly
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 Thr Asp Ala Ile Thr Lys Gly Leu Asp Gln Glu Met Gly Val Glu Leu
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 Pro Gly Asp Val Pro Lys Gly Glu Pro Ser Pro Pro Ala Lys Phe Phe
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 Gly Glu Ala Leu Lys Thr Ala Val Leu Asn Gly Thr Val Pro Glu Ala
 1380 1385 1390
 Ala Val Thr Arg Ser Ala Glu Arg Ile Val Gly Gln Met Glu Lys Phe
 1395 1400 1405
 Gly Leu Leu Leu Ala Thr Pro Ala Pro Arg Pro Glu Arg Asp Lys Ala
 1410 1415 1420
 Gly Ala Gln Ala Val Ser Arg Lys Val Ala Glu Asn Gly Ala Val Leu
 1425 1430 1435 1440
 Leu Arg Asn Glu Gly Gln Ala Leu Pro Leu Ala Gly Asp Ala Gly Lys
 1445 1450 1455
 Ser Ile Ala Val Ile Gly Pro Thr Ala Val Asp Pro Lys Val Thr Gly
 1460 1465 1470
 Leu Gly Ser Ala His Val Val Pro Asp Ser Ala Ala Pro Leu Asp
 1475 1480 1485
 Thr Ile Lys Ala Arg Ala Gly Ala Gly Ala Thr Val Thr Tyr Glu Thr
 1490 1495 1500

Gly	Glu	Glu	Thr	Phe	Gly	Thr	Gln	Ile	Pro	Ala	Gly	Asn	Leu	Ser	Pro	1505	1510	1515	1520
Ala	Phe	Asn	Gln	Gly	His	Gln	Leu	Glu	Pro	Gly	Lys	Ala	Gly	Ala	Leu	1525	1530	1535	
Tyr	Asp	Gly	Thr	Leu	Thr	Val	Pro	Ala	Asp	Gly	Glu	Tyr	Arg	Ile	Ala	1540	1545	1550	
Val	Arg	Ala	Thr	Gly	Gly	Tyr	Ala	Thr	Val	Gln	Leu	Gly	Ser	His	Thr	1555	1560	1565	
Ile	Glu	Ala	Gly	Gln	Val	Tyr	Gly	Lys	Val	Ser	Ser	Pro	Leu	Leu	Lys	1570	1575	1580	
Leu	Thr	Lys	Gly	Thr	His	Lys	Leu	Thr	Ile	Ser	Gly	Phe	Ala	Met	Ser	1585	1590	1595	1600
Ala	Thr	Pro	Leu	Ser	Leu	Glu	Leu	Gly	Trp	Val	Thr	Pro	Ala	Ala	Ala	1605	1610	1615	
Asp	Ala	Thr	Ile	Ala	Lys	Ala	Val	Glu	Ser	Ala	Arg	Lys	Ala	Arg	Thr	1620	1625	1630	
Ala	Val	Val	Phe	Ala	Tyr	Asp	Asp	Gly	Thr	Glu	Gly	Val	Asp	Arg	Pro	1635	1640	1645	
Asn	Leu	Ser	Leu	Pro	Gly	Thr	Gln	Asp	Lys	Leu	Ile	Ser	Ala	Val	Ala	1650	1655	1660	
Asp	Ala	Asn	Pro	Asn	Thr	Ile	Val	Val	Leu	Asn	Thr	Gly	Ser	Ser	Val	1665	1670	1675	1680
Leu	Met	Pro	Trp	Leu	Ser	Lys	Thr	Arg	Ala	Val	Leu	Asp	Met	Trp	Tyr	1685	1690	1695	
Pro	Gly	Gln	Ala	Gly	Ala	Glu	Ala	Thr	Ala	Ala	Leu	Leu	Tyr	Gly	Asp	1700	1705	1710	
Val	Asn	Pro	Ser	Gly	Lys	Leu	Thr	Gln	Ser	Phe	Pro	Ala	Ala	Glu	Asn	1715	1720	1725	
Gln	His	Ala	Val	Ala	Gly	Asp	Pro	Thr	Ser	Tyr	Pro	Gly	Val	Asp	Asn	1730	1735	1740	
Gln	Gln	Thr	Tyr	Arg	Glu	Gly	Ile	His	Val	Gly	Tyr	Arg	Trp	Phe	Asp	1745	1750	1755	1760
Lys	Glu	Asn	Val	Lys	Pro	Leu	Phe	Pro	Phe	Gly	His	Gly	Leu	Ser	Tyr	1765	1770	1775	
Thr	Ser	Phe	Thr	Gln	Ser	Ala	Pro	Thr	Val	Val	Arg	Thr	Ser	Thr	Gly	1780	1785	1790	
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Gln	Glu	Val	Val	Gln	Ala	Tyr	Leu	Gly	Ala	Ser	Pro	Asn	Val	Thr	Ala	1810	1815	1820	
Pro	Gln	Ala	Lys	Lys	Lys	Leu	Val	Gly	Tyr	Thr	Lys	Val	Ser	Leu	Ala	1825	1830	1835	1840
Ala	Gly	Glu	Ala	Lys	Thr	Val	Thr	Val	Asn	Val	Asp	Arg	Arg	Gln	Leu	1845	1850	1855	
Gln	Thr	Gly	Ser	Ser	Ser	Ala	Asp	Leu	Arg	Gly	Ser	Ala	Thr	Val	Asn	1860	1865	1870	
Val	Trp	Met	Ser	Ser	Arg	Ala	Glu	Thr	Pro	Arg	Val	Pro	Phe	Leu	Asp	1875	1880	1885	
Leu	Lys	Ala	Ala	Tyr	Glu	Glu	Leu	Arg	Ala	Glu	Thr	Asp	Ala	Ala	Ile	1890	1895	1900	
Ala	Arg	Val	Leu	Asp	Ser	Gly	Arg	Tyr	Leu	Leu	Gly	Pro	Glu	Leu	Glu	1905	1910	1915	1920
Gly	Phe	Glu	Ala	Glu	Phe	Ala	Ala	Tyr	Cys	Glu	Thr	Asp	His	Ala	Val	1925	1930	1935	
Gly	Val	Asn	Ser	Gly	Met	Asp	Ala	Leu	Gln	Leu	Ala	Leu	Arg	Gly	Leu	1940	1945	1950	
Gly	Ile	Gly	Pro	Gly	Asp	Glu	Val	Ile	Val	Pro	Ser	His	Thr	Tyr	Ile	1955	1960	1965	
Ala	Ser	Trp	Leu	Ala	Val	Ser	Ala	Thr	Gly	Ala	Thr	Pro	Val	Pro	Val	1970	1975	1980	
Glu	Pro	His	Glu	Asp	His	Pro	Thr	Leu	Asp	Pro	Leu	Leu	Val	Glu	Lys	1985	1990	1995	2000

Ala Ile Thr Pro Arg Thr Arg Ala Leu Leu Pro Val His Leu Tyr Gly
 2005 2010 2015
 His Pro Ala Asp Met Asp Ala Leu Arg Glu Leu Ala Asp Arg His Gly
 2020 2025 2030
 Leu His Ile Val Glu Asp Ala Ala Gln Ala His Gly Ala Arg Tyr Arg
 2035 2040 2045
 Gly Arg Arg Ile Gly Ala Gly Ser Ser Val Ala Ala Phe Ser Phe Tyr
 2050 2055 2060
 Pro Gly Lys Asn Leu Gly Cys Phe Gly Asp Gly Ala Val Val Thr
 2065 2070 2075 2080
 Gly Asp Pro Glu Leu Ala Glu Arg Leu Arg Met Leu Arg Asn Tyr Gly
 2085 2090 2095
 Ser Arg Gln Lys Tyr Ser His Glu Thr Lys Gly Thr Asn Ser Arg Leu
 2100 2105 2110
 Asp Glu Met Gln Ala Ala Val Leu Arg Ile Arg Leu Ala His Leu Asp
 2115 2120 2125
 Ser Trp Asn Gly Arg Arg Ser Ala Leu Ala Ala Glu Tyr Leu Ser Gly
 2130 2135 2140
 Leu Ala Gly Leu Pro Gly Ile Gly Leu Pro Val Thr Ala Pro Asp Thr
 2145 2150 2155 2160
 Asp Pro Val Trp His Leu Phe Thr Val Arg Thr Glu Arg Arg Asp Glu
 2165 2170 2175
 Leu Arg Ser His Leu Asp Ala Arg Gly Ile Asp Thr Leu Thr His Tyr
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 Pro Val Pro Val His Leu Ser Pro Ala Tyr Ala Gly Glu Ala Pro Pro
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 Glu Gly Ser Leu Pro Arg Ala Glu Ser Phe Ala Arg Gln Val Leu Ser
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 Leu Pro Ile Gly Pro His Leu Glu Arg Pro Gln Ala Leu Arg Val Ile
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 Leu Asp Ser Leu Thr Tyr Ala Gly Asn Arg Ala Asn Leu Ala Pro Val
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 2660 2665 2670
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Asp Thr Gly Asn Leu Asp Pro Asp Gln Val Ala Ala Ala Val Thr Pro
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 Gly Ser Pro Ala Gly Gly Thr Asn Ala Lys Met Ser Glu Ala Ala Ala
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 Ala Met Gly Leu Thr Ser Leu Asp Ala Phe Pro Glu Val Ile Asp Arg
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 Gly Arg Arg Ala Gln Arg Leu Gly Ala Arg Thr Pro Gly His Val Thr
 65 70 75 80
 Val Val His His Asp Phe Leu Gln Tyr Pro Leu Pro Arg Asn Pro His
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 Val Val Val Gly Asn Val Pro Phe His Leu Thr Thr Ala Ile Met Arg
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 Arg Leu Leu Asp Ala Gln His Trp His Thr Ala Val Leu Leu Val Gln
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 Trp Glu Val Ala Arg Arg Arg Ala Gly Val Gly Gly Ser Thr Leu Leu
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 Thr Ala Gly Trp Ala Pro Trp Tyr Glu Phe Asp Leu His Ser Arg Val
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 Gln Asp Phe Val Arg Gln Val Phe Thr Gly Lys Gly Asn Gly Leu Lys
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 Trp Leu Arg Arg Asn Glu Ile Ser Pro His Ala Leu Pro Lys Asp Leu
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 Lys Pro Gly Gln Trp Ala Ser Leu Trp Glu Leu Thr Gly Gly Thr Ala
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Pro	Trp	Tyr	Glu	Phe	Ala	Val	His	Asp	Arg	Val	Arg	Ala	Ser	Ser	Phe
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785					790					795					800
Arg	Ser	Asn	Ser	Arg	Trp	Gly	Gly	Phe	Ile	Glu	Asp	Val	Asp	Arg	Phe
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Asp	Ala	Ala	Phe	Phe	Gly	Ile	Ser	Pro	Arg	Glu	Ala	Ala	Glu	Met	Asp
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Val	Val	Asp	Ser	Gly	Gln	Ser	Ser	Ser	Leu	Val	Ala	Val	His	Leu	Ala
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Cys	Glu	Ser	Leu	Arg	Arg	Gly	Glu	Ser	Glu	Leu	Ala	Leu	Ala	Gly	Gly
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Tyr	Glu	Thr	Pro	Asn	Pro	Ala	Ile	Pro	Phe	Glu	Glu	Leu	Asn	Leu	Arg
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Arg	Gly	Val	Ala	Ser	Gly	Val	Gly	Arg	Val	Ala	Phe	Val	Phe	Pro	Gly
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Tyr	Val	Arg	Gln	Gly	Gly	Phe	Ile	Glu	Asn	Val	Ala	Gly	Phe	Asp	Ala		
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Gln	Arg	Leu	Leu	Leu	Glu	Thr	Ser	Trp	Glu	Ala	Val	Glu	Asp	Ala	Gly		
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Glu	Arg	Leu	Ser	Asp	Phe	Asp	Gly	Leu	Ser	Val	Ala	Ala	Val	Asn	Gly	2450	2455	2460
Pro	Thr	Ala	Thr	Val	Val	Ser	Gly	Asp	Pro	Val	Gln	Ile	Glu	Glu	Leu	2465	2470	2475
Ala	Gln	Ala	Cys	Lys	Ala	Asp	Gly	Phe	Arg	Ala	Arg	Ile	Ile	Pro	Val	2485	2490	2495
Asp	Tyr	Ala	Ser	His	Ser	Arg	Gln	Val	Glu	Ile	Ile	Glu	Ser	Glu	Leu	2500	2505	2510
Ala	Gln	Val	Leu	Ala	Gly	Leu	Ser	Pro	Gln	Ala	Pro	Arg	Val	Pro	Phe	2515	2520	2525
Phe	Ser	Thr	Leu	Glu	Gly	Thr	Trp	Ile	Thr	Glu	Pro	Val	Leu	Asp	Gly	2530	2535	2540
Thr	Tyr	Trp	Tyr	Arg	Asn	Leu	Arg	His	Arg	Val	Gly	Phe	Ala	Pro	Ala	2545	2550	2555
Ile	Glu	Thr	Leu	Ala	Val	Asp	Glu	Gly	Phe	Thr	His	Phe	Val	Glu	Val	2565	2570	2575
Ser	Ala	His	Pro	Val	Leu	Thr	Met	Thr	Leu	Pro	Glu	Thr	Val	Thr	Gly	2580	2585	2590
Leu	Gly	Thr	Leu	Arg	Arg	Glu	Gln	Gly	Gly	Gln	Glu	Arg	Leu	Val	Thr	2595	2600	2605
Ser	Leu	Ala	Glu	Ala	Trp	Val	Asn	Gly	Leu	Pro	Val	Ala	Trp	Thr	Ser	2610	2615	2620
Leu	Leu	Pro	Ala	Thr	Ala	Ser	Arg	Pro	Gly	Leu	Pro	Thr	Tyr	Ala	Phe	2625	2630	2635
Gln	Ala	Glu	Arg	Tyr	Trp	Leu	Glu	Asn	Thr	Pro	Ala	Ala	Leu	Ala	Thr	2645	2650	2655
Gly	Asp	Asp	Trp	Arg	Tyr	Arg	Ile	Asp	Trp	Lys	Arg	Leu	Pro	Ala	Ala	2660	2665	2670
Glu	Gly	Ser	Glu	Arg	Thr	Gly	Leu	Ser	Gly	Arg	Trp	Leu	Ala	Val	Thr	2675	2680	2685
Pro	Glu	Asp	His	Ser	Ala	Gln	Ala	Ala	Ala	Val	Leu	Thr	Ala	Leu	Val	2690	2695	2700
Asp	Ala	Gly	Ala	Lys	Val	Glu	Val	Leu	Thr	Ala	Gly	Ala	Asp	Asp	Asp	2705	2710	2715
Arg	Glu	Ala	Leu	Ala	Ala	Arg	Leu	Thr	Ala	Leu	Thr	Thr	Gly	Asp	Gly	2725	2730	2735
Phe	Thr	Gly	Val	Val	Ser	Leu	Leu	Asp	Gly	Leu	Val	Pro	Gln	Val	Ala	2740	2745	2750
Trp	Val	Gln	Ala	Leu	Gly	Asp	Ala	Gly	Ile	Lys	Ala	Pro	Leu	Trp	Ser	2755	2760	2765
Val	Thr	Gln	Gly	Ala	Val	Ser	Val	Gly	Arg	Leu	Asp	Thr	Pro	Ala	Asp	2770	2775	2780
Pro	Asp	Arg	Ala	Met	Leu	Trp	Gly	Leu	Gly	Arg	Val	Val	Ala	Leu	Glu	2785	2790	2795
His	Pro	Glu	Arg	Trp	Ala	Gly	Leu	Val	Asp	Leu	Pro	Ala	Gln	Pro	Asp	2805	2810	2815
Ala	Ala	Ala	Leu	Ala	His	Leu	Val	Thr	Ala	Leu	Ser	Gly	Ala	Thr	Gly	2820	2825	2830
Glu	Asp	Gln	Ile	Ala	Ile	Arg	Thr	Thr	Gly	Leu	His	Ala	Arg	Arg	Leu	2835	2840	2845
Ala	Arg	Ala	Pro	Leu	His	Gly	Arg	Arg	Pro	Thr	Arg	Asp	Trp	Gln	Pro	2850	2855	2860
His	Gly	Thr	Val	Leu	Ile	Thr	Gly	Gly	Thr	Gly	Ala	Leu	Gly	Ser	His	2865	2870	2875
Ala	Ala	Arg	Trp	Met	Ala	His	His	Gly	Ala	Glu	His	Leu	Leu	Leu	Val	2885	2890	2895
Ser	Arg	Ser	Gly	Glu	Gln	Ala	Pro	Gly	Ala	Thr	Gln	Leu	Thr	Ala	Glu	2900	2905	2910
Leu	Thr	Ala	Ser	Gly	Ala	Arg	Val	Thr	Ile	Ala	Ala	Cys	Asp	Val	Ala	2915	2920	2925

Asp Pro His Ala Met Arg Thr Leu Leu Asp Ala Ile Pro Ala Glu Thr
 2930 2935 2940
 Pro Leu Thr Ala Val Val His Thr Ala Gly Ala Leu Asp Asp Gly Ile
 2945 2950 2955 2960
 Val Asp Thr Leu Thr Ala Glu Gln Val Arg Arg Ala His Arg Ala Lys
 2965 2970 2975
 Ala Val Gly Ala Ser Val Leu Asp Glu Leu Thr Arg Asp Leu Asp Leu
 2980 2985 2990
 Asp Ala Phe Val Leu Phe Ser Ser Val Ser Ser Thr Leu Gly Ile Pro
 2995 3000 3005
 Gly Gln Gly Asn Tyr Ala Pro His Asn Ala Tyr Leu Asp Ala Leu Ala
 3010 3015 3020
 Ala Arg Arg Arg Ala Thr Gly Arg Ser Ala Val Ser Val Ala Trp Gly
 3025 3030 3035 3040
 Pro Trp Asp Gly Gly Gly Met Ala Ala Gly Asp Gly Val Ala Glu Arg
 3045 3050 3055
 Leu Arg Asn His Gly Val Pro Gly Met Asp Pro Glu Leu Ala Leu Ala
 3060 3065 3070
 Ala Leu Glu Ser Ala Leu Gly Arg Asp Glu Thr Ala Ile Thr Val Ala
 3075 3080 3085
 Asp Ile Asp Trp Asp Arg Phe Tyr Leu Ala Tyr Ser Ser Gly Arg Pro
 3090 3095 3100
 Gln Pro Leu Val Glu Glu Leu Pro Glu Val Arg Arg Ile Ile Asp Ala
 3105 3110 3115 3120
 Arg Asp Ser Ala Thr Ser Gly Gln Gly Gly Ser Ser Ala Gln Gly Ala
 3125 3130 3135
 Asn Pro Leu Ala Glu Arg Leu Ala Ala Ala Pro Gly Glu Arg Thr
 3140 3145 3150
 Glu Ile Leu Leu Gly Leu Val Arg Ala Gln Ala Ala Ala Val Leu Arg
 3155 3160 3165
 Met Arg Ser Pro Glu Asp Val Ala Ala Asp Arg Ala Phe Lys Asp Ile
 3170 3175 3180
 Gly Phe Asp Ser Leu Ala Gly Val Glu Leu Arg Asn Arg Leu Thr Arg
 3185 3190 3195 3200
 Ala Thr Gly Leu Gln Leu Pro Ala Thr Leu Val Phe Asp His Pro Thr
 3205 3210 3215
 Pro Leu Ala Leu Val Ser Leu Leu Arg Ser Glu Phe Leu Gly Asp Glu
 3220 3225 3230
 Glu Thr Ala Asp Ala Arg Arg Ser Ala Ala Leu Pro Ala Thr Val Gly
 3235 3240 3245
 Ala Gly Ala Gly Ala Gly Ala Gly Thr Asp Ala Asp Asp Asp Pro Ile
 3250 3255 3260
 Ala Ile Val Ala Met Ser Cys Arg Tyr Pro Gly Asp Ile Arg Ser Pro
 3265 3270 3275 3280
 Glu Asp Leu Trp Arg Met Leu Ser Glu Gly Gly Glu Gly Ile Thr Pro
 3285 3290 3295
 Phe Pro Thr Asp Arg Gly Trp Asp Leu Asp Gly Leu Tyr Asp Ala Asp
 3300 3305 3310
 Pro Asp Ala Leu Gly Arg Ala Tyr Val Arg Glu Gly Gly Phe Leu His
 3315 3320 3325
 Asp Ala Ala Glu Phe Asp Ala Glu Phe Phe Gly Val Ser Pro Arg Glu
 3330 3335 3340
 Ala Leu Ala Met Asp Pro Gln Gln Arg Met Leu Leu Thr Thr Ser Trp
 3345 3350 3355 3360
 Glu Ala Phe Glu Arg Ala Gly Ile Glu Pro Ala Ser Leu Arg Gly Ser
 3365 3370 3375
 Ser Thr Gly Val Phe Ile Gly Leu Ser Tyr Gln Asp Tyr Ala Ala Arg
 3380 3385 3390
 Val Pro Asn Ala Pro Arg Gly Val Glu Gly Tyr Leu Leu Thr Gly Ser
 3395 3400 3405
 Thr Pro Ser Val Ala Ser Gly Arg Ile Ala Tyr Thr Phe Gly Leu Glu
 3410 3415 3420

Gly	Pro	Ala	Thr	Thr	Val	Asp	Thr	Ala	Cys	Ser	Ser	Ser	Leu	Thr	Ala	
3425					3430					3435					3440	
Leu	His	Leu	Ala	Val	Arg	Ala	Leu	Arg	Ser	Gly	Glu	Cys	Thr	Met	Ala	
				3445					3450					3455		
Leu	Ala	Gly	Gly	Val	Ala	Met	Met	Ala	Thr	Pro	His	Met	Phe	Val	Glu	
			3460					3465					3470			
Phe	Ser	Arg	Gln	Arg	Ala	Leu	Ala	Pro	Asp	Gly	Arg	Ser	Lys	Ala	Phe	
		3475				3480					3485					
Ser	Ala	Asp	Ala	Asp	Gly	Phe	Gly	Ala	Ala	Glu	Gly	Val	Gly	Leu	Leu	
	3490				3495					3500						
Leu	Val	Glu	Arg	Leu	Ser	Asp	Ala	Arg	Arg	Asn	Gly	His	Pro	Val	Leu	
3505					3510					3515					3520	
Ala	Val	Val	Arg	Gly	Thr	Ala	Val	Asn	Gln	Asp	Gly	Ala	Ser	Asn	Gly	
				3525				3530						3535		
Leu	Thr	Ala	Pro	Asn	Gly	Pro	Ser	Gln	Gln	Arg	Val	Ile	Arg	Gln	Ala	
			3540					3545					3550			
Leu	Ala	Asp	Ala	Arg	Leu	Ala	Pro	Gly	Asp	Ile	Asp	Ala	Val	Glu	Thr	
		3555				3560					3565					
His	Gly	Thr	Gly	Thr	Ser	Leu	Gly	Asp	Pro	Ile	Glu	Ala	Gln	Gly	Leu	
	3570					3575				3580						
Gln	Ala	Thr	Tyr	Gly	Lys	Glu	Arg	Pro	Ala	Glu	Arg	Pro	Leu	Ala	Ile	
3585					3590					3595					3600	
Gly	Ser	Val	Lys	Ser	Asn	Ile	Gly	His	Thr	Gln	Ala	Ala	Ala	Gly	Ala	
			3605					3610						3615		
Ala	Gly	Ile	Ile	Lys	Met	Val	Leu	Ala	Met	Arg	His	Gly	Thr	Leu	Pro	
			3620					3625					3630			
Lys	Thr	Leu	His	Ala	Asp	Glu	Pro	Ser	Pro	His	Val	Asp	Trp	Ala	Asn	
		3635					3640					3645				
Ser	Gly	Leu	Ala	Leu	Val	Thr	Glu	Pro	Ile	Asp	Trp	Pro	Ala	Gly	Thr	
	3650					3655				3660						
Gly	Pro	Arg	Arg	Ala	Ala	Val	Ser	Ser	Phe	Gly	Ile	Ser	Gly	Thr	Asn	
3665					3670					3675					3680	
Ala	His	Val	Val	Leu	Glu	Gln	Ala	Pro	Asp	Ala	Ala	Gly	Glu	Val	Leu	
				3685				3690						3695		
Gly	Ala	Asp	Glu	Val	Pro	Glu	Val	Ser	Glu	Thr	Val	Ala	Met	Ala	Gly	
		3700						3705					3710			
Thr	Ala	Gly	Thr	Ser	Glu	Val	Ala	Glu	Gly	Ser	Glu	Ala	Ser	Glu	Ala	
		3715					3720					3725				
Pro	Ala	Ala	Pro	Gly	Ser	Arg	Glu	Ala	Ser	Leu	Pro	Gly	His	Leu	Pro	
	3730					3735					3740					
Trp	Val	Leu	Ser	Ala	Lys	Asp	Glu	Gln	Ser	Leu	Arg	Gly	Gln	Ala	Ala	
3745					3750					3755					3760	
Ala	Leu	His	Ala	Trp	Leu	Ser	Glu	Pro	Ala	Ala	Asp	Leu	Ser	Asp	Ala	
			3765					3770						3775		
Asp	Gly	Pro	Ala	Arg	Leu	Arg	Asp	Val	Gly	Tyr	Thr	Leu	Ala	Thr	Ser	
		3780						3785					3790			
Arg	Thr	Ala	Phe	Ala	His	Arg	Ala	Ala	Val	Thr	Ala	Ala	Asp	Arg	Asp	
		3795					3800					3805				
Gly	Phe	Leu	Asp	Gly	Leu	Ala	Thr	Leu	Ala	Gln	Gly	Gly	Thr	Ser	Ala	
	3810					3815					3820					
His	Val	His	Leu	Asp	Thr	Ala	Arg	Asp	Gly	Thr	Thr	Ala	Phe	Leu	Phe	
3825					3830					3835					3840	
Thr	Gly	Gln	Gly	Ser	Gln	Arg	Pro	Gly	Ala	Gly	Arg	Glu	Leu	Tyr	Asp	
			3845					3850					3855			
Arg	His	Pro	Val	Phe	Ala	Arg	Ala	Leu	Asp	Glu	Ile	Cys	Ala	His	Leu	
		3860						3865					3870			
Asp	Gly	His	Leu	Glu	Leu	Pro	Leu	Leu	Asp	Val	Met	Phe	Ala	Ala	Glu	
		3875					3880					3885				
Gly	Ser	Ala	Glu	Ala	Ala	Leu	Leu	Asp	Glu	Thr	Arg	Tyr	Thr	Gln	Cys	
	3890					3895				3900						
Ala	Leu	Phe	Ala	Leu	Glu	Val	Ala	Leu	Phe	Arg	Leu	Val	Glu	Ser	Trp	
3905					3910					3915					3920	

Gly Met Arg Pro Ala Ala Leu Leu Gly His Ser Val Gly Glu Ile Ala
 3925 3930 3935
 Ala Ala His Val Ala Gly Val Phe Ser Leu Ala Asp Ala Ala Arg Leu
 3940 3945 3950
 Val Ala Ala Arg Gly Arg Leu Met Gln Glu Leu Pro Ala Gly Gly Ala
 3955 3960 3965
 Met Leu Ala Val Gln Ala Ala Glu Asp Glu Ile Arg Val Trp Leu Glu
 3970 3975 3980
 Thr Glu Glu Arg Tyr Ala Gly Arg Leu Asp Val Ala Ala Val Asn Gly
 3985 3990 3995 4000
 Pro Glu Ala Ala Val Leu Ser Gly Asp Ala Asp Ala Ala Arg Glu Ala
 4005 4010 4015
 Glu Ala Tyr Trp Ser Gly Leu Gly Arg Arg Thr Arg Ala Leu Arg Val
 4020 4025 4030
 Ser His Ala Phe His Ser Ala His Met Asp Gly Met Leu Asp Gly Phe
 4035 4040 4045
 Arg Ala Val Leu Glu Thr Val Glu Phe Arg Arg Pro Ser Leu Thr Val
 4050 4055 4060
 Val Ser Asn Val Thr Gly Leu Ala Ala Gly Pro Asp Asp Leu Cys Asp
 4065 4070 4075 4080
 Pro Glu Tyr Trp Val Arg His Val Arg Gly Thr Val Arg Phe Leu Asp
 4085 4090 4095
 Gly Val Arg Val Leu Arg Asp Leu Gly Val Arg Thr Cys Leu Glu Leu
 4100 4105 4110
 Gly Pro Asp Gly Val Leu Thr Ala Met Ala Ala Asp Gly Leu Ala Asp
 4115 4120 4125
 Thr Pro Ala Asp Ser Ala Ala Gly Ser Pro Val Gly Ser Pro Ala Gly
 4130 4135 4140
 Ser Pro Ala Asp Ser Ala Ala Gly Ala Leu Arg Pro Arg Pro Leu Leu
 4145 4150 4155 4160
 Val Ala Leu Leu Arg Arg Lys Arg Ser Glu Thr Glu Thr Val Ala Asp
 4165 4170 4175
 Ala Leu Gly Arg Ala His Ala His Gly Thr Gly Pro Asp Trp His Ala
 4180 4185 4190
 Trp Phe Ala Gly Ser Gly Ala His Arg Val Asp Leu Pro Thr Tyr Ser
 4195 4200 4205
 Phe Arg Arg Asp Arg Tyr Trp Leu Asp Ala Pro Ala Ala Asp Thr Ala
 4210 4215 4220
 Val Asp Thr Ala Gly Leu Gly Leu Gly Thr Ala Asp His Pro Leu Leu
 4225 4230 4235 4240
 Gly Ala Val Val Ser Leu Pro Asp Arg Asp Gly Leu Leu Leu Thr Gly
 4245 4250 4255
 Arg Leu Ser Leu Arg Thr His Pro Trp Leu Ala Asp His Ala Val Leu
 4260 4265 4270
 Gly Ser Val Leu Leu Pro Gly Ala Ala Met Val Glu Leu Ala Ala His
 4275 4280 4285
 Ala Ala Glu Ser Ala Gly Leu Arg Asp Val Arg Glu Leu Thr Leu Leu
 4290 4295 4300
 Glu Pro Leu Val Leu Pro Glu His Gly Gly Val Glu Leu Arg Val Thr
 4305 4310 4315 4320
 Val Gly Ala Pro Ala Gly Glu Pro Gly Gly Glu Ser Ala Gly Asp Gly
 4325 4330 4335
 Ala Arg Pro Val Ser Leu His Ser Arg Leu Ala Asp Ala Pro Ala Gly
 4340 4345 4350
 Thr Ala Trp Ser Cys His Ala Thr Gly Leu Leu Ala Thr Asp Arg Pro
 4355 4360 4365
 Glu Leu Pro Val Ala Pro Asp Arg Ala Ala Met Trp Pro Pro Gln Gly
 4370 4375 4380
 Ala Glu Glu Val Pro Leu Asp Gly Leu Tyr Glu Arg Leu Asp Gly Asn
 4385 4390 4395 4400
 Gly Leu Ala Phe Gly Pro Leu Phe Gln Gly Leu Asn Ala Val Trp Arg
 4405 4410 4415

Tyr Glu Gly Glu Val Phe Ala Asp Ile Ala Leu Pro Ala Thr Thr Asn
4420 4425 4430
Ala Thr Ala Pro Ala Thr Ala Asn Gly Gly Gly Ser Ala Ala Ala
4435 4440 4445
Pro Tyr Gly Ile His Pro Ala Leu Leu Asp Ala Ser Leu His Ala Ile
4450 4455 4460
Ala Val Gly Gly Leu Val Asp Glu Pro Glu Leu Val Arg Val Pro Phe
4465 4470 4475 4480
His Trp Ser Gly Val Thr Val His Ala Ala Gly Ala Ala Ala Arg
4485 4490 4495
Val Arg Leu Ala Ser Ala Gly Thr Asp Ala Val Ser Leu Ser Leu Thr
4500 4505 4510
Asp Gly Glu Gly Arg Pro Leu Val Ser Val Glu Arg Leu Thr Leu Arg
4515 4520 4525
Pro Val Thr Ala Asp Gln Ala Ala Ala Ser Arg Val Gly Gly Leu Met
4530 4535 4540
His Arg Val Ala Trp Arg Pro Tyr Ala Leu Ala Ser Ser Gly Glu Gln
4545 4550 4555 4560
Asp Pro His Ala Thr Ser Tyr Gly Pro Thr Ala Val Leu Gly Lys Asp
4565 4570 4575
Glu Leu Lys Val Ala Ala Ala Leu Glu Ser Ala Gly Val Glu Val Gly
4580 4585 4590
Leu Tyr Pro Asp Leu Ala Ala Leu Ser Gln Asp Val Ala Ala Gly Ala
4595 4600 4605
Pro Ala Pro Arg Thr Val Leu Ala Pro Leu Pro Ala Gly Pro Ala Asp
4610 4615 4620
Gly Gly Ala Glu Gly Val Arg Gly Thr Val Ala Arg Thr Leu Glu Leu
4625 4630 4635 4640
Leu Gln Ala Trp Leu Ala Asp Glu His Leu Ala Gly Thr Arg Leu Leu
4645 4650 4655
Leu Val Thr Arg Gly Ala Val Arg Asp Pro Glu Gly Ser Gly Ala Asp
4660 4665 4670
Asp Gly Gly Glu Asp Leu Ser His Ala Ala Ala Trp Gly Leu Val Arg
4675 4680 4685
Thr Ala Gln Thr Glu Asn Pro Gly Arg Phe Gly Leu Leu Asp Leu Ala
4690 4695 4700
Asp Asp Ala Ser Ser Tyr Arg Thr Leu Pro Ser Val Leu Ser Asp Ala
4705 4710 4715 4720
Gly Leu Arg Asp Glu Pro Gln Leu Ala Leu His Asp Gly Thr Ile Arg
4725 4730 4735
Leu Ala Arg Leu Ala Ser Val Arg Pro Glu Thr Gly Thr Ala Ala Pro
4740 4745 4750
Ala Leu Ala Pro Glu Gly Thr Val Leu Leu Thr Gly Gly Thr Gly Gly
4755 4760 4765
Leu Gly Gly Leu Val Ala Arg His Val Val Gly Glu Trp Gly Val Arg
4770 4775 4780
Arg Leu Leu Leu Val Ser Arg Arg Gly Thr Asp Ala Pro Gly Ala Asp
4785 4790 4795 4800
Glu Leu Val His Glu Leu Glu Ala Leu Gly Ala Asp Val Ser Val Ala
4805 4810 4815
Ala Cys Asp Val Ala Asp Arg Glu Ala Leu Thr Ala Val Leu Asp Ala
4820 4825 4830
Ile Pro Ala Glu His Pro Leu Thr Ala Val Val His Thr Ala Gly Val
4835 4840 4845
Leu Ser Asp Gly Thr Leu Pro Ser Met Thr Thr Glu Asp Val Glu His
4850 4855 4860
Val Leu Arg Pro Lys Val Asp Ala Ala Phe Leu Leu Asp Glu Leu Thr
4865 4870 4875 4880
Ser Thr Pro Ala Tyr Asp Leu Ala Ala Phe Val Met Phe Ser Ser Ala
4885 4890 4895
Ala Ala Val Phe Gly Gly Ala Gly Gln Gly Ala Tyr Ala Ala Asn
4900 4905 4910

Ala Thr Leu Asp Ala Leu Ala Trp Arg Arg Arg Ala Ala Gly Leu Pro
 4915 4920 4925
 Ala Leu Ser Leu Gly Trp Gly Leu Trp Ala Glu Thr Ser Gly Met Thr
 4930 4935 4940
 Gly Glu Leu Gly Gln Ala Asp Leu Arg Arg Met Ser Arg Ala Gly Ile
 4945 4950 4955 4960
 Gly Gly Ile Ser Asp Ala Glu Gly Ile Ala Leu Leu Asp Ala Ala Leu
 4965 4970 4975
 Arg Asp Asp Arg His Pro Val Leu Leu Pro Leu Arg Leu Asp Ala Ala
 4980 4985 4990
 Gly Leu Arg Asp Ala Ala Gly Asn Asp Pro Ala Gly Ile Pro Ala Leu
 4995 5000 5005
 Phe Arg Asp Val Val Gly Ala Arg Thr Val Arg Ala Arg Pro Ser Ala
 5010 5015 5020
 Ala Ser Ala Ser Thr Thr Ala Gly Thr Ala Gly Thr Pro Gly Thr Ala
 5025 5030 5035 5040
 Asp Gly Ala Ala Glu Thr Ala Ala Val Thr Leu Ala Asp Arg Ala Ala
 5045 5050 5055
 Thr Val Asp Gly Pro Ala Arg Gln Arg Leu Leu Leu Glu Phe Val Val
 5060 5065 5070
 Gly Glu Val Ala Glu Val Leu Gly His Ala Arg Gly His Arg Ile Asp
 5075 5080 5085
 Ala Glu Arg Gly Phe Leu Asp Leu Gly Phe Asp Ser Leu Thr Ala Val
 5090 5095 5100
 Glu Leu Arg Asn Arg Leu Asn Ser Ala Gly Gly Leu Ala Leu Pro Ala
 5105 5110 5115 5120
 Thr Leu Val Phe Asp His Pro Ser Pro Ala Ala Leu Ala Ser His Leu
 5125 5130 5135
 Asp Ala Glu Leu Pro Arg Gly Ala Ser Asp Gln Asp Gly Ala Gly Asn
 5140 5145 5150
 Arg Asn Gly Asn Glu Asn Gly Thr Thr Ala Ser Arg Ser Thr Ala Glu
 5155 5160 5165
 Thr Asp Ala Leu Leu Ala Gln Leu Thr Arg Leu Glu Gly Ala Leu Val
 5170 5175 5180
 Leu Thr Gly Leu Ser Asp Ala Pro Gly Ser Glu Glu Val Leu Glu His
 5185 5190 5195 5200
 Leu Arg Ser Leu Arg Ser Met Val Thr Gly Glu Thr Gly Thr Gly Thr
 5205 5210 5215
 Ala Ser Gly Ala Pro Asp Gly Ala Gly Ser Gly Ala Glu Asp Arg Pro
 5220 5225 5230
 Trp Ala Ala Gly Asp Gly Ala Gly Gly Gly Ser Glu Asp Gly Ala Gly
 5235 5240 5245
 Val Pro Asp Phe Met Asn Ala Ser Ala Glu Glu Leu Phe Gly Leu Leu
 5250 5255 5260
 Asp Gln Asp Pro Ser Thr Asp Met Ser Thr Val Asn Glu Glu Lys Tyr
 5265 5270 5275 5280
 Leu Asp Tyr Leu Arg Arg Ala Thr Ala Asp Leu His Glu Ala Arg Gly
 5285 5290 5295
 Arg Leu Arg Glu Leu Glu Ala Lys Ala Gly Glu Pro Val Ala Ile Val
 5300 5305 5310
 Gly Met Ala Cys Arg Leu Pro Gly Gly Val Ala Ser Pro Glu Asp Leu
 5315 5320 5325
 Trp Arg Leu Val Ala Gly Gly Glu Asp Ala Ile Ser Glu Phe Pro Gln
 5330 5335 5340
 Asp Arg Gly Trp Asp Val Glu Gly Leu Tyr Asp Pro Asn Pro Glu Ala
 5345 5350 5355 5360
 Thr Gly Lys Ser Tyr Ala Arg Glu Ala Gly Phe Leu Tyr Glu Ala Gly
 5365 5370 5375
 Glu Phe Asp Ala Asp Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala
 5380 5385 5390
 Met Asp Pro Gln Gln Arg Leu Leu Leu Glu Ala Ser Trp Glu Ala Phe
 5395 5400 5405

Glu	His	Ala	Gly	Ile	Pro	Ala	Ala	Thr	Ala	Arg	Gly	Thr	Ser	Val	Gly	5410	5415	5420
Val	Phe	Thr	Gly	Val	Met	Tyr	His	Asp	Tyr	Ala	Thr	Arg	Leu	Thr	Asp	5425	5430	5435
Val	Pro	Glu	Gly	Ile	Glu	Gly	Tyr	Leu	Gly	Thr	Gly	Asn	Ser	Gly	Ser	5445	5450	5455
Val	Ala	Ser	Gly	Arg	Val	Ala	Tyr	Thr	Leu	Gly	Leu	Glu	Gly	Pro	Ala	5460	5465	5470
Val	Thr	Val	Asp	Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Leu	5475	5480	5485
Ala	Val	Gln	Ala	Leu	Arg	Lys	Gly	Glu	Val	Asp	Met	Ala	Leu	Ala	Gly	5490	5495	5500
Gly	Val	Thr	Val	Met	Ser	Thr	Pro	Ser	Thr	Phe	Val	Glu	Phe	Ser	Arg	5505	5510	5515
Gln	Arg	Gly	Leu	Ala	Pro	Asp	Gly	Arg	Ser	Lys	Ser	Phe	Ser	Ser	Thr	5525	5530	5535
Ala	Asp	Gly	Thr	Ser	Trp	Ser	Glu	Gly	Val	Gly	Val	Leu	Leu	Val	Glu	5540	5545	5550
Arg	Leu	Ser	Asp	Ala	Arg	Arg	Lys	Gly	His	Arg	Ile	Leu	Ala	Val	Val	5555	5560	5565
Arg	Gly	Thr	Ala	Val	Asn	Gln	Asp	Gly	Ala	Ser	Ser	Gly	Leu	Thr	Ala	5570	5575	5580
Pro	Asn	Gly	Pro	Ser	Gln	Gln	Arg	Val	Ile	Arg	Arg	Ala	Leu	Ala	Asp	5585	5590	5595
Ala	Arg	Leu	Thr	Thr	Ser	Asp	Val	Asp	Val	Val	Glu	Ala	His	Gly	Thr	5605	5610	5615
Gly	Thr	Arg	Leu	Gly	Asp	Pro	Ile	Glu	Ala	Gln	Ala	Val	Ile	Ala	Thr	5620	5625	5630
Tyr	Gly	Gln	Gly	Arg	Asp	Gly	Glu	Gln	Pro	Leu	Arg	Leu	Gly	Ser	Leu	5635	5640	5645
Lys	Ser	Asn	Ile	Gly	His	Thr	Gln	Ala	Ala	Ala	Gly	Val	Ser	Gly	Val	5650	5655	5660
Ile	Lys	Met	Val	Gln	Ala	Met	Arg	His	Gly	Val	Leu	Pro	Lys	Thr	Leu	5665	5670	5675
His	Val	Glu	Lys	Pro	Thr	Asp	Gln	Val	Asp	Trp	Ser	Ala	Gly	Ala	Val	5685	5690	5695
Glu	Leu	Leu	Thr	Glu	Ala	Met	Asp	Trp	Pro	Asp	Lys	Gly	Asp	Gly	Gly	5700	5705	5710
Leu	Arg	Arg	Ala	Ala	Val	Ser	Ser	Phe	Gly	Val	Ser	Gly	Thr	Asn	Ala	5715	5720	5725
His	Val	Val	Leu	Glu	Glu	Ala	Pro	Ala	Ala	Glu	Glu	Thr	Pro	Ala	Ser	5730	5735	5740
Glu	Ala	Thr	Pro	Ala	Val	Glu	Pro	Ser	Val	Gly	Ala	Gly	Leu	Val	Pro	5745	5750	5755
Trp	Leu	Val	Ser	Ala	Lys	Thr	Pro	Ala	Ala	Leu	Asp	Ala	Gln	Ile	Gly	5765	5770	5775
Arg	Leu	Ala	Ala	Phe	Ala	Ser	Gln	Gly	Arg	Thr	Asp	Ala	Ala	Asp	Pro	5780	5785	5790
Gly	Ala	Val	Ala	Arg	Val	Leu	Ala	Gly	Gly	Arg	Ala	Glu	Phe	Glu	His	5795	5800	5805
Arg	Ala	Val	Val	Leu	Gly	Thr	Gly	Gln	Asp	Asp	Phe	Ala	Gln	Ala	Leu	5810	5815	5820
Thr	Ala	Pro	Glu	Gly	Leu	Ile	Arg	Gly	Thr	Pro	Ser	Asp	Val	Gly	Arg	5825	5830	5835
Val	Ala	Phe	Val	Phe	Pro	Gly	Gln	Gly	Thr	Gln	Trp	Ala	Gly	Met	Gly	5845	5850	5855
Ala	Glu	Leu	Leu	Asp	Val	Ser	Lys	Glu	Phe	Ala	Ala	Ala	Met	Ala	Glu	5860	5865	5870
Cys	Glu	Ser	Ala	Leu	Ser	Arg	Tyr	Val	Asp	Trp	Ser	Leu	Glu	Ala	Val	5875	5880	5885
Val	Arg	Gln	Ala	Pro	Gly	Ala	Pro	Thr	Leu	Glu	Arg	Val	Asp	Val	Val	5890	5895	5900

Gln Pro Val Thr Phe Ala Val Met Val Ser Leu Ala Lys Val Trp Gln
5905 5910 5915 5920
His His Gly Val Thr Pro Gln Ala Val Val Gly His Ser Gln Gly Glu
5925 5930 5935
Ile Ala Ala Ala Tyr Val Ala Gly Ala Leu Thr Leu Asp Asp Ala Ala
5940 5945 5950
Arg Val Val Thr Leu Arg Ser Lys Ser Ile Ala Ala His Leu Ala Gly
5955 5960 5965
Lys Gly Gly Met Ile Ser Leu Ala Leu Ser Glu Glu Ala Thr Arg Gln
5970 5975 5980
Arg Ile Glu Asn Leu His Gly Leu Ser Ile Ala Ala Val Asn Gly Pro
5985 5990 5995 6000
Thr Ala Thr Val Val Ser Gly Asp Pro Thr Gln Ile Gln Glu Leu Ala
6005 6010 6015
Gln Ala Cys Glu Ala Asp Gly Val Arg Ala Arg Ile Ile Pro Val Asp
6020 6025 6030
Tyr Ala Ser His Ser Ala His Val Glu Thr Ile Glu Ser Glu Leu Ala
6035 6040 6045
Glu Val Leu Ala Gly Leu Ser Pro Arg Thr Pro Glu Val Pro Phe Phe
6050 6055 6060
Ser Thr Leu Glu Gly Ala Trp Ile Thr Glu Pro Val Leu Asp Gly Thr
6065 6070 6075 6080
Tyr Trp Tyr Arg Asn Leu Arg His Arg Val Gly Phe Ala Pro Ala Val
6085 6090 6095
Glu Thr Leu Ala Thr Asp Glu Gly Phe Thr His Phe Ile Glu Val Ser
6100 6105 6110
Ala His Pro Val Leu Thr Met Thr Leu Pro Glu Thr Val Thr Gly Leu
6115 6120 6125
Gly Thr Leu Arg Arg Glu Gln Gly Gly Gln Glu Arg Leu Val Thr Ser
6130 6135 6140
Leu Ala Glu Ala Trp Thr Asn Gly Leu Thr Ile Asp Trp Ala Pro Val
6145 6150 6155 6160
Leu Pro Thr Ala Thr Gly His His Pro Glu Leu Pro Thr Tyr Ala Phe
6165 6170 6175
Gln Arg Arg His Tyr Trp Leu His Asp Ser Pro Ala Val Gln Gly Ser
6180 6185 6190
Val Gln Asp Ser Trp Arg Tyr Arg Ile Asp Trp Lys Arg Leu Ala Val
6195 6200 6205
Ala Asp Ala Ser Glu Arg Ala Gly Leu Ser Gly Arg Trp Leu Val Val
6210 6215 6220
Val Pro Glu Asp Arg Ser Ala Glu Ala Ala Pro Val Leu Ala Ala Leu
6225 6230 6235 6240
Ser Gly Ala Gly Ala Asp Pro Val Gln Leu Asp Val Ser Pro Leu Gly
6245 6250 6255
Asp Arg Gln Arg Leu Ala Ala Thr Leu Gly Glu Ala Leu Ala Ala Ala
6260 6265 6270
Gly Gly Ala Val Asp Gly Val Leu Ser Leu Leu Ala Trp Asp Glu Ser
6275 6280 6285
Ala His Pro Gly His Pro Ala Pro Phe Thr Arg Gly Thr Gly Ala Thr
6290 6295 6300
Leu Thr Leu Val Gln Ala Leu Glu Asp Ala Gly Val Ala Ala Pro Leu
6305 6310 6315 6320
Trp Cys Val Thr His Gly Ala Val Ser Val Gly Arg Ala Asp His Val
6325 6330 6335
Thr Ser Pro Ala Gln Ala Met Val Trp Gly Met Gly Arg Val Ala Ala
6340 6345 6350
Leu Glu His Pro Glu Arg Trp Gly Gly Leu Ile Asp Leu Pro Ser Asp
6355 6360 6365
Ala Asp Arg Ala Ala Leu Asp Arg Met Thr Thr Val Leu Ala Gly Gly
6370 6375 6380
Thr Gly Glu Asp Gln Val Ala Val Arg Ala Ser Gly Leu Leu Ala Arg
6385 6390 6395 6400

Arg Leu Val Arg Ala Ser Leu Pro Ala His Gly Thr Ala Ser Pro Trp
 6405 6410 6415
 Trp Gln Ala Asp Gly Thr Val Leu Val Thr Gly Ala Glu Glu Pro Ala
 6420 6425 6430
 Ala Ala Glu Ala Ala Arg Arg Leu Ala Arg Asp Gly Ala Gly His Leu
 6435 6440 6445
 Leu Leu His Thr Thr Pro Ser Gly Ser Glu Gly Ala Glu Gly Thr Ser
 6450 6455 6460
 Gly Ala Ala Glu Asp Ser Gly Leu Ala Gly Leu Val Ala Glu Leu Ala
 6465 6470 6475 6480
 Asp Leu Gly Ala Thr Ala Thr Val Val Thr Cys Asp Leu Thr Asp Ala
 6485 6490 6495
 Glu Ala Ala Ala Arg Leu Leu Ala Gly Val Ser Asp Ala His Pro Leu
 6500 6505 6510
 Ser Ala Val Leu His Leu Pro Pro Thr Val Asp Ser Glu Pro Leu Ala
 6515 6520 6525
 Ala Thr Asp Ala Asp Ala Leu Ala Arg Val Val Thr Ala Lys Ala Thr
 6530 6535 6540
 Ala Ala Leu His Leu Asp Arg Leu Leu Arg Glu Ala Ala Ala Ala Gly
 6545 6550 6555 6560
 Gly Arg Pro Pro Val Leu Val Leu Phe Ser Ser Val Ala Ala Ile Trp
 6565 6570 6575
 Gly Gly Ala Gly Gln Gly Ala Tyr Ala Ala Gly Thr Ala Phe Leu Asp
 6580 6585 6590
 Ala Leu Ala Gly Gln His Arg Ala Asp Gly Pro Thr Val Thr Ser Val
 6595 6600 6605
 Ala Trp Ser Pro Trp Glu Gly Ser Arg Val Thr Glu Gly Ala Thr Gly
 6610 6615 6620
 Glu Arg Leu Arg Arg Leu Gly Leu Arg Pro Leu Ala Pro Ala Thr Ala
 6625 6630 6635 6640
 Leu Thr Ala Leu Asp Thr Ala Leu Gly His Gly Asp Thr Ala Val Thr
 6645 6650 6655
 Ile Ala Asp Val Asp Trp Ser Ser Phe Ala Pro Gly Phe Thr Thr Ala
 6660 6665 6670
 Arg Pro Gly Thr Leu Leu Ala Asp Leu Pro Glu Ala Arg Arg Ala Leu
 6675 6680 6685
 Asp Glu Gln Gln Ser Thr Thr Ala Ala Asp Asp Thr Val Leu Ser Arg
 6690 6695 6700
 Glu Leu Gly Ala Leu Thr Gly Ala Glu Gln Gln Arg Arg Met Gln Glu
 6705 6710 6715 6720
 Leu Val Arg Glu His Leu Ala Val Val Leu Asn His Pro Ser Pro Glu
 6725 6730 6735
 Ala Val Asp Thr Gly Arg Ala Phe Arg Asp Leu Gly Phe Asp Ser Leu
 6740 6745 6750
 Thr Ala Val Glu Leu Arg Asn Arg Leu Lys Asn Ala Thr Gly Leu Ala
 6755 6760 6765
 Leu Pro Ala Thr Leu Val Phe Asp Tyr Pro Thr Pro Arg Thr Leu Ala
 6770 6775 6780
 Glu Phe Leu Leu Ala Glu Ile Leu Gly Glu Gln Ala Gly Ala Gly Glu
 6785 6790 6795 6800
 Gln Leu Pro Val Asp Gly Gly Val Asp Asp Glu Pro Val Ala Ile Val
 6805 6810 6815
 Gly Met Ala Cys Arg Leu Pro Gly Gly Val Ala Ser Pro Glu Asp Leu
 6820 6825 6830
 Trp Arg Leu Val Ala Gly Gly Glu Asp Ala Ile Ser Gly Phe Pro Gln
 6835 6840 6845
 Asp Arg Gly Trp Asp Val Glu Gly Leu Tyr Asp Pro Asp Pro Asp Ala
 6850 6855 6860
 Ser Gly Arg Thr Tyr Cys Arg Ala Gly Gly Phe Leu Asp Glu Ala Gly
 6865 6870 6875 6880
 Glu Phe Asp Ala Asp Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala
 6885 6890 6895

Met	Asp	Pro	Gln	Gln	Arg	Leu	Leu	Leu	Glu	Thr	Ser	Trp	Glu	Ala	Val	6900	6905	6910
Glu	Asp	Ala	Gly	Ile	Asp	Pro	Thr	Ser	Leu	Gln	Gly	Gln	Gln	Val	Gly	6915	6920	6925
Val	Phe	Ala	Gly	Thr	Asn	Gly	Pro	His	Tyr	Glu	Pro	Leu	Leu	Arg	Asn	6930	6935	6940
Thr	Ala	Glu	Asp	Leu	Glu	Gly	Tyr	Val	Gly	Thr	Gly	Asn	Ala	Ala	Ser	6945	6950	6955
Ile	Met	Ser	Gly	Arg	Val	Ser	Tyr	Thr	Leu	Gly	Leu	Glu	Gly	Pro	Ala	6965	6970	6975
Val	Thr	Val	Asp	Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Leu	6980	6985	6990
Ala	Val	Gln	Ala	Leu	Arg	Lys	Gly	Glu	Cys	Gly	Leu	Ala	Leu	Ala	Gly	6995	7000	7005
Gly	Val	Thr	Val	Met	Ser	Thr	Pro	Thr	Thr	Phe	Val	Glu	Phe	Ser	Arg	7010	7015	7020
Gln	Arg	Gly	Leu	Ala	Glu	Asp	Gly	Arg	Ser	Lys	Ala	Phe	Ala	Ala	Ser	7025	7030	7035
Ala	Asp	Gly	Phe	Gly	Pro	Ala	Glu	Gly	Val	Gly	Met	Leu	Leu	Val	Glu	7045	7050	7055
Arg	Leu	Ser	Asp	Ala	Arg	Arg	Asn	Gly	His	Arg	Val	Leu	Ala	Val	Val	7060	7065	7070
Arg	Gly	Ser	Ala	Val	Asn	Gln	Asp	Gly	Ala	Ser	Asn	Gly	Leu	Thr	Ala	7075	7080	7085
Pro	Asn	Gly	Pro	Ser	Gln	Gln	Arg	Val	Ile	Arg	Arg	Ala	Leu	Ala	Asp	7090	7095	7100
Ala	Arg	Leu	Thr	Thr	Ala	Asp	Val	Asp	Val	Val	Glu	Ala	His	Gly	Thr	7105	7110	7115
Gly	Thr	Arg	Leu	Gly	Asp	Pro	Ile	Glu	Ala	Gln	Ala	Leu	Ile	Ala	Thr	7125	7130	7135
Tyr	Gly	Gln	Gly	Arg	Asp	Thr	Glu	Gln	Pro	Leu	Arg	Leu	Gly	Ser	Leu	7140	7145	7150
Lys	Ser	Asn	Ile	Gly	His	Thr	Gln	Ala	Ala	Ala	Gly	Val	Ser	Gly	Ile	7155	7160	7165
Ile	Lys	Met	Val	Gln	Ala	Met	Arg	His	Gly	Val	Leu	Pro	Lys	Thr	Leu	7170	7175	7180
His	Val	Asp	Arg	Pro	Ser	Asp	Gln	Ile	Asp	Trp	Ser	Ala	Gly	Thr	Val	7185	7190	7195
Glu	Leu	Leu	Thr	Glu	Ala	Met	Asp	Trp	Pro	Arg	Lys	Gln	Glu	Gly	Gly	7205	7210	7215
Leu	Arg	Arg	Ala	Ala	Val	Ser	Ser	Phe	Gly	Ile	Ser	Gly	Thr	Asn	Ala	7220	7225	7230
His	Ile	Val	Leu	Glu	Glu	Ala	Pro	Val	Asp	Glu	Asp	Ala	Pro	Ala	Asp	7235	7240	7245
Glu	Pro	Ser	Val	Gly	Gly	Val	Val	Pro	Trp	Leu	Val	Ser	Ala	Lys	Thr	7250	7255	7260
Pro	Ala	Ala	Leu	Asp	Ala	Gln	Ile	Gly	Arg	Leu	Ala	Ala	Phe	Ala	Ser	7265	7270	7275
Gln	Gly	Arg	Thr	Asp	Ala	Ala	Asp	Pro	Gly	Ala	Val	Ala	Arg	Val	Leu	7285	7290	7295
Ala	Gly	Gly	Arg	Ala	Gln	Phe	Glu	His	Arg	Ala	Val	Ala	Leu	Gly	Thr	7300	7305	7310
Gly	Gln	Asp	Asp	Leu	Ala	Ala	Ala	Leu	Ala	Ala	Pro	Glu	Gly	Leu	Val	7315	7320	7325
Arg	Gly	Val	Ala	Ser	Gly	Val	Gly	Arg	Val	Ala	Phe	Val	Phe	Pro	Gly	7330	7335	7340
Gln	Gly	Thr	Gln	Trp	Ala	Gly	Met	Gly	Ala	Glu	Leu	Leu	Asp	Val	Ser	7345	7350	7355
Lys	Glu	Phe	Ala	Ala	Ala	Met	Ala	Glu	Cys	Glu	Ala	Ala	Leu	Ala	Pro	7365	7370	7375
Tyr	Val	Asp	Trp	Ser	Leu	Glu	Ala	Val	Val	Arg	Gln	Ala	Pro	Gly	Ala	7380	7385	7390

Pro Thr Leu Glu Arg Val Asp Val Val Gln Pro Val Thr Phe Ala Val
 7395 7400 7405
 Met Val Ser Leu Ala Lys Val Trp Gln His His Gly Val Thr Pro Gln
 7410 7415 7420
 Ala Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala Tyr Val Ala
 7425 7430 7435 7440
 Gly Ala Leu Ser Leu Asp Asp Ala Ala Arg Val Val Thr Leu Arg Ser
 7445 7450 7455
 Lys Ser Ile Gly Ala His Leu Ala Gly Gln Gly Gly Met Leu Ser Leu
 7460 7465 7470
 Ala Leu Ser Glu Ala Ala Val Val Glu Arg Leu Ala Gly Phe Asp Gly
 7475 7480 7485
 Leu Ser Val Ala Ala Val Asn Gly Pro Thr Ala Thr Val Val Ser Gly
 7490 7495 7500
 Asp Pro Thr Gln Ile Gln Glu Leu Ala Gln Ala Cys Glu Ala Asp Gly
 7505 7510 7515 7520
 Val Arg Ala Arg Ile Ile Pro Val Asp Tyr Ala Ser His Ser Ala His
 7525 7530 7535
 Val Glu Thr Ile Glu Ser Glu Leu Ala Asp Val Leu Ala Gly Leu Ser
 7540 7545 7550
 Pro Gln Thr Pro Gln Val Pro Phe Phe Ser Thr Leu Glu Gly Ala Trp
 7555 7560 7565
 Ile Thr Glu Pro Ala Leu Asp Gly Gly Tyr Trp Tyr Arg Asn Leu Arg
 7570 7575 7580
 His Arg Val Gly Phe Ala Pro Ala Val Glu Thr Leu Ala Thr Asp Glu
 7585 7590 7595 7600
 Gly Phe Thr His Phe Val Glu Val Ser Ala His Pro Val Leu Thr Met
 7605 7610 7615
 Ala Leu Pro Glu Thr Val Thr Gly Leu Gly Thr Leu Arg Arg Asp Asn
 7620 7625 7630
 Gly Gly Gln His Arg Leu Thr Thr Ser Leu Ala Glu Ala Trp Ala Asn
 7635 7640 7645
 Gly Leu Thr Val Asp Trp Ala Ser Leu Leu Pro Thr Thr Thr Thr His
 7650 7655 7660
 Pro Asp Leu Pro Thr Tyr Ala Phe Gln Thr Glu Arg Tyr Trp Pro Gln
 7665 7670 7675 7680
 Pro Asp Leu Ser Ala Ala Gly Asp Ile Thr Ser Ala Gly Leu Gly Ala
 7685 7690 7695
 Ala Glu His Pro Leu Leu Gly Ala Ala Val Ala Leu Ala Asp Ser Asp
 7700 7705 7710
 Gly Cys Leu Leu Thr Gly Ser Leu Ser Leu Arg Thr His Pro Trp Leu
 7715 7720 7725
 Ala Asp His Ala Val Ala Gly Thr Val Leu Leu Pro Gly Thr Ala Phe
 7730 7735 7740
 Val Glu Leu Ala Phe Arg Ala Gly Asp Gln Val Gly Cys Asp Leu Val
 7745 7750 7755 7760
 Glu Glu Leu Thr Leu Asp Ala Pro Leu Val Leu Pro Arg Arg Gly Ala
 7765 7770 7775
 Val Arg Val Gln Leu Ser Val Gly Ala Ser Asp Glu Ser Gly Arg Arg
 7780 7785 7790
 Thr Phe Gly Leu Tyr Ala His Pro Glu Asp Ala Pro Gly Glu Ala Glu
 7795 7800 7805
 Trp Thr Arg His Ala Thr Gly Val Leu Ala Ala Arg Ala Asp Arg Thr
 7810 7815 7820
 Ala Pro Val Ala Asp Pro Glu Ala Trp Pro Pro Pro Gly Ala Glu Pro
 7825 7830 7835 7840
 Val Asp Val Asp Gly Leu Tyr Glu Arg Phe Ala Ala Asn Gly Tyr Gly
 7845 7850 7855
 Tyr Gly Pro Leu Phe Gln Gly Val Arg Gly Val Trp Arg Arg Gly Asp
 7860 7865 7870
 Glu Val Phe Ala Asp Val Ala Leu Pro Ala Glu Val Ala Gly Ala Glu
 7875 7880 7885

Gly Ala Arg Phe Gly Leu His Pro Ala Leu Leu Asp Ala Ala Val Gln
 7890 7895 7900
 Ala Ala Gly Ala Gly Arg Gly Val Arg Arg Gly His Ala Ala Val
 7905 7910 7915 7920
 Arg Leu Glu Arg Asp Leu Leu Tyr Ala Val Gly Ala Thr Ala Leu Arg
 7925 7930 7935
 Val Arg Leu Ala Pro Ala Gly Pro Asp Thr Val Ser Val Ser Ala Ala
 7940 7945 7950
 Asp Ser Ser Gly Gln Pro Val Phe Ala Ala Asp Ser Leu Thr Val Leu
 7955 7960 7965
 Pro Val Asp Pro Ala Gln Leu Ala Ala Phe Ser Asp Pro Thr Leu Asp
 7970 7975 7980
 Ala Leu His Leu Leu Glu Trp Thr Ala Trp Asp Gly Ala Ala Gln Ala
 7985 7990 7995 8000
 Leu Pro Gly Ala Val Val Leu Gly Gly Asp Ala Asp Gly Leu Ala Ala
 8005 8010 8015
 Ala Leu Arg Ala Gly Gly Thr Glu Val Leu Ser Phe Pro Asp Leu Thr
 8020 8025 8030
 Asp Leu Val Glu Ala Val Asp Arg Gly Glu Thr Pro Ala Pro Ala Thr
 8035 8040 8045
 Val Leu Val Ala Cys Pro Ala Ala Gly Pro Asp Gly Pro Glu His Val
 8050 8055 8060
 Arg Glu Ala Leu His Gly Ser Leu Ala Leu Met Gln Ala Trp Leu Ala
 8065 8070 8075 8080
 Asp Glu Arg Phe Thr Asp Gly Arg Leu Val Leu Val Thr Arg Asp Ala
 8085 8090 8095
 Val Ala Ala Arg Ser Gly Asp Gly Leu Arg Ser Thr Gly Gln Ala Ala
 8100 8105 8110
 Val Trp Gly Leu Gly Arg Ser Ala Gln Thr Glu Ser Pro Gly Arg Phe
 8115 8120 8125
 Val Leu Leu Asp Leu Ala Gly Glu Ala Arg Thr Ala Gly Asp Ala Thr
 8130 8135 8140
 Ala Gly Asp Gly Leu Thr Thr Gly Asp Ala Thr Val Gly Gly Thr Ser
 8145 8150 8155 8160
 Gly Asp Ala Ala Leu Gly Ser Ala Leu Ala Thr Ala Leu Gly Ser Gly
 8165 8170 8175
 Glu Pro Gln Leu Ala Leu Arg Asp Gly Ala Leu Leu Val Pro Arg Leu
 8180 8185 8190
 Ala Arg Ala Ala Ala Pro Ala Ala Ala Asp Gly Leu Ala Ala Ala Asp
 8195 8200 8205
 Gly Leu Ala Ala Leu Pro Leu Pro Ala Ala Pro Ala Leu Trp Arg Leu
 8210 8215 8220
 Glu Pro Gly Thr Asp Gly Ser Leu Glu Ser Leu Thr Ala Ala Pro Gly
 8225 8230 8235 8240
 Asp Ala Glu Thr Leu Ala Pro Glu Pro Leu Gly Pro Gly Gln Val Arg
 8245 8250 8255
 Ile Ala Ile Arg Ala Thr Gly Leu Asn Phe Arg Asp Val Leu Ile Ala
 8260 8265 8270
 Leu Gly Met Tyr Pro Asp Pro Ala Leu Met Gly Thr Glu Gly Ala Gly
 8275 8280 8285
 Val Val Thr Ala Thr Gly Pro Gly Val Thr His Leu Ala Pro Gly Asp
 8290 8295 8300
 Arg Val Met Gly Leu Leu Ser Gly Ala Tyr Ala Pro Val Val Val Ala
 8305 8310 8315 8320
 Asp Ala Arg Thr Val Ala Arg Met Pro Glu Gly Trp Thr Phe Ala Gln
 8325 8330 8335
 Gly Ala Ser Val Pro Val Val Phe Leu Thr Ala Val Tyr Ala Leu Arg
 8340 8345 8350
 Asp Leu Ala Asp Val Lys Pro Gly Glu Arg Leu Leu Val His Ser Ala
 8355 8360 8365
 Ala Gly Gly Val Gly Met Ala Ala Val Gln Leu Ala Arg His Trp Gly
 8370 8375 8380

Val	Glu	Val	His	Gly	Thr	Ala	Ser	His	Gly	Lys	Trp	Asp	Ala	Leu	Arg	8385	8390	8395	8400
Ala	Leu	Gly	Leu	Asp	Asp	Ala	His	Ile	Ala	Ser	Ser	Arg	Thr	Leu	Asp	8405	8410	8415	
Phe	Glu	Ser	Ala	Phe	Arg	Ala	Ala	Ser	Gly	Gly	Ala	Gly	Met	Asp	Val	8420	8425	8430	
Val	Leu	Asn	Ser	Leu	Ala	Arg	Glu	Phe	Val	Asp	Ala	Ser	Leu	Arg	Leu	8435	8440	8445	
Leu	Gly	Pro	Gly	Gly	Arg	Phe	Val	Glu	Met	Gly	Lys	Thr	Asp	Val	Arg	8450	8455	8460	
Asp	Ala	Glu	Arg	Val	Ala	Ala	Asp	His	Pro	Gly	Val	Gly	Tyr	Arg	Ala	8465	8470	8475	8480
Phe	Asp	Leu	Gly	Glu	Ala	Gly	Pro	Glu	Arg	Ile	Gly	Glu	Met	Leu	Ala	8485	8490	8495	
Glu	Val	Ile	Ala	Leu	Phe	Glu	Asp	Gly	Val	Leu	Arg	His	Leu	Pro	Val	8500	8505	8510	
Thr	Thr	Trp	Asp	Val	Arg	Arg	Ala	Arg	Asp	Ala	Phe	Arg	His	Val	Ser	8515	8520	8525	
Gln	Ala	Arg	His	Thr	Gly	Lys	Val	Val	Leu	Thr	Met	Pro	Ser	Gly	Leu	8530	8535	8540	
Asp	Pro	Glu	Gly	Thr	Val	Leu	Leu	Thr	Gly	Gly	Thr	Gly	Ala	Leu	Gly	8545	8550	8555	8560
Gly	Ile	Val	Ala	Arg	His	Val	Val	Gly	Glu	Trp	Gly	Val	Arg	Arg	Leu	8565	8570	8575	
Leu	Leu	Val	Ser	Arg	Arg	Gly	Thr	Asp	Ala	Pro	Gly	Ala	Gly	Glu	Leu	8580	8585	8590	
Val	His	Glu	Leu	Glu	Ala	Leu	Gly	Ala	Asp	Val	Ser	Val	Ala	Ala	Cys	8595	8600	8605	
Asp	Val	Ala	Asp	Arg	Glu	Ala	Leu	Thr	Ala	Val	Leu	Asp	Ser	Ile	Pro	8610	8615	8620	
Ala	Glu	His	Pro	Leu	Thr	Ala	Val	Val	His	Thr	Ala	Gly	Val	Leu	Ser	8625	8630	8635	8640
Asp	Gly	Thr	Leu	Pro	Ser	Met	Thr	Ala	Glu	Asp	Val	Glu	His	Val	Leu	8645	8650	8655	
Arg	Pro	Lys	Val	Asp	Ala	Ala	Phe	Leu	Leu	Asp	Glu	Leu	Thr	Ser	Thr	8660	8665	8670	
Pro	Gly	Tyr	Asp	Leu	Ala	Ala	Phe	Val	Met	Phe	Ser	Ser	Ala	Ala	Ala	8675	8680	8685	
Val	Phe	Gly	Gly	Ala	Gly	Gln	Gly	Ala	Tyr	Ala	Ala	Ala	Asn	Ala	Thr	8690	8695	8700	
Leu	Asp	Ala	Leu	Ala	Trp	Arg	Arg	Arg	Thr	Ala	Gly	Leu	Pro	Ala	Leu	8705	8710	8715	8720
Ser	Leu	Gly	Trp	Gly	Leu	Trp	Ala	Glu	Thr	Ser	Gly	Met	Thr	Gly	Gly	8725	8730	8735	
Leu	Ser	Asp	Thr	Asp	Arg	Ser	Arg	Leu	Ala	Arg	Ser	Gly	Ala	Thr	Pro	8740	8745	8750	
Met	Asp	Ser	Glu	Leu	Thr	Leu	Ser	Leu	Leu	Asp	Ala	Ala	Met	Arg	Arg	8755	8760	8765	
Asp	Asp	Pro	Ala	Leu	Val	Pro	Ile	Ala	Leu	Asp	Val	Ala	Ala	Leu	Arg	8770	8775	8780	
Ala	Gln	Gln	Arg	Asp	Gly	Met	Leu	Ala	Pro	Leu	Leu	Ser	Gly	Leu	Thr	8785	8790	8795	8800
Arg	Gly	Ser	Arg	Val	Gly	Gly	Ala	Pro	Val	Asn	Gln	Arg	Arg	Ala	Ala	8805	8810	8815	
Ala	Gly	Gly	Ala	Gly	Glu	Ala	Asp	Thr	Asp	Leu	Gly	Gly	Arg	Leu	Ala	8820	8825	8830	
Ala	Met	Thr	Pro	Asp	Asp	Arg	Val	Ala	His	Leu	Arg	Asp	Leu	Val	Arg	8835	8840	8845	
Thr	His	Val	Ala	Thr	Val	Leu	Gly	His	Gly	Thr	Pro	Ser	Arg	Val	Asp	8850	8855	8860	
Leu	Glu	Arg	Ala	Phe	Arg	Asp	Thr	Gly	Phe	Asp	Ser	Leu	Thr	Ala	Val	8865	8870	8875	8880

Glu	Leu	Arg	Asn	Arg	Leu	Asn	Ala	Ala	Thr	Gly	Leu	Arg	Leu	Pro	Ala		
				8885						8890				8895			
Thr	Leu	Val	Phe	Asp	His	Pro	Thr	Pro	Gly	Glu	Leu	Ala	Gly	His	Leu		
			8900						8905				8910				
Leu	Asp	Glu	Leu	Ala	Thr	Ala	Ala	Gly	Gly	Ser	Trp	Ala	Glu	Gly	Thr		
		8915						8920				8925					
Gly	Ser	Gly	Asp	Thr	Ala	Ser	Ala	Thr	Asp	Arg	Gln	Thr	Thr	Ala	Ala		
		8930				8935					8940						
Leu	Ala	Glu	Leu	Asp	Arg	Leu	Glu	Gly	Val	Leu	Ala	Ser	Leu	Ala	Pro		
8945				8950						8955					8960		
Ala	Ala	Gly	Gly	Arg	Pro	Glu	Leu	Ala	Ala	Arg	Leu	Arg	Ala	Leu	Ala		
				8965					8970					8975			
Ala	Ala	Leu	Gly	Asp	Asp	Gly	Asp	Asp	Ala	Thr	Asp	Leu	Asp	Glu	Ala		
			8980					8985					8990				
Ser	Asp	Asp	Asp	Leu	Phe	Ser	Phe	Ile	Asp	Lys	Glu	Leu	Gly	Asp	Ser		
		8995					9000					9005					
Asp	Phe	Met	Ala	Asn	Asn	Glu	Asp	Lys	Leu	Arg	Asp	Tyr	Leu	Lys	Arg		
	9010					9015					9020						
Val	Thr	Ala	Glu	Leu	Gln	Gln	Asn	Thr	Arg	Arg	Leu	Arg	Glu	Ile	Glu		
9025					9030					9035					9040		
Gly	Arg	Thr	His	Glu	Pro	Val	Ala	Ile	Val	Gly	Met	Ala	Cys	Arg	Leu		
			9045						9050					9055			
Pro	Gly	Gly	Val	Ala	Ser	Pro	Glu	Asp	Leu	Trp	Gln	Leu	Val	Ala	Gly		
			9060					9065					9070				
Asp	Gly	Asp	Ala	Ile	Ser	Glu	Phe	Pro	Gln	Asp	Arg	Gly	Trp	Asp	Val		
	9075						9080					9085					
Glu	Gly	Leu	Tyr	Asp	Pro	Asp	Pro	Asp	Ala	Ser	Gly	Arg	Thr	Tyr	Cys		
	9090					9095					9100						
Arg	Ser	Gly	Gly	Phe	Leu	His	Asp	Ala	Gly	Glu	Phe	Asp	Ala	Asp	Phe		
9105					9110					9115					9120		
Phe	Gly	Ile	Ser	Pro	Arg	Glu	Ala	Leu	Ala	Met	Asp	Pro	Gln	Gln	Arg		
			9125						9130					9135			
Leu	Ser	Leu	Thr	Thr	Ala	Trp	Glu	Ala	Ile	Glu	Ser	Ala	Gly	Ile	Asp		
		9140						9145					9150				
Pro	Thr	Ala	Leu	Lys	Gly	Ser	Gly	Leu	Gly	Val	Phe	Val	Gly	Gly	Trp		
		9155					9160					9165					
His	Thr	Gly	Tyr	Thr	Ser	Gly	Gln	Thr	Thr	Ala	Val	Gln	Ser	Pro	Glu		
	9170					9175					9180						
Leu	Glu	Gly	His	Leu	Val	Ser	Gly	Ala	Ala	Leu	Gly	Phe	Leu	Ser	Gly		
9185					9190					9195					9200		
Arg	Ile	Ala	Tyr	Val	Leu	Gly	Thr	Asp	Gly	Pro	Ala	Leu	Thr	Val	Asp		
			9205						9210					9215			
Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Leu	Ala	Val	Gln	Ala		
			9220					9225					9230				
Leu	Arg	Lys	Gly	Glu	Cys	Asp	Met	Ala	Leu	Ala	Gly	Gly	Val	Thr	Val		
		9235					9240					9245					
Met	Pro	Asn	Ala	Asp	Leu	Phe	Val	Gln	Phe	Ser	Arg	Gln	Arg	Gly	Leu		
	9250					9255					9260						
Ala	Ala	Asp	Gly	Arg	Ser	Lys	Ala	Phe	Ala	Thr	Ser	Ala	Asp	Gly	Phe		
9265					9270					9275					9280		
Gly	Pro	Ala	Glu	Gly	Ala	Gly	Val	Leu	Leu	Val	Glu	Arg	Leu	Ser	Asp		
			9285						9290					9295			
Ala	Arg	Arg	Asn	Gly	His	Arg	Ile	Leu	Ala	Val	Val	Arg	Gly	Ser	Ala		
			9300					9305					9310				
Val	Asn	Gln	Asp	Gly	Ala	Ser	Asn	Gly	Leu	Thr	Ala	Pro	His	Gly	Pro		
	9315						9320					9325					
Ser	Gln	Gln	Arg	Val	Ile	Arg	Arg	Ala	Leu	Ala	Asp	Ala	Arg	Leu	Ala		
	9330					9335					9340						
Pro	Gly	Asp	Val	Asp	Val	Val	Glu	Ala	His	Gly	Thr	Gly	Thr	Arg	Leu		
9345				9350						9355					9360		
Gly	Asp	Pro	Ile	Glu	Ala	Gln	Ala	Leu	Ile	Ala	Thr	Tyr	Gly	Gln	Glu		
			9365						9370					9375			

Lys Ser Ser Glu Gln Pro Leu Arg Leu Gly Ala Leu Lys Ser Asn Ile
 9380 9385 9390
 Gly His Thr Gln Ala Ala Ala Gly Val Ala Gly Val Ile Lys Met Val
 9395 9400 9405
 Gln Ala Met Arg His Gly Leu Leu Pro Lys Thr Leu His Val Asp Glu
 9410 9415 9420
 Pro Ser Asp Gln Ile Asp Trp Ser Ala Gly Thr Val Glu Leu Leu Thr
 9425 9430 9435 9440
 Glu Ala Val Asp Trp Pro Glu Lys Gln Asp Gly Gly Leu Arg Arg Ala
 9445 9450 9455
 Ala Val Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His Val Val Leu
 9460 9465 9470
 Glu Glu Ala Pro Ala Val Glu Asp Ser Pro Ala Val Glu Pro Pro Ala
 9475 9480 9485
 Gly Gly Gly Val Val Pro Trp Pro Val Ser Ala Lys Thr Pro Ala Ala
 9490 9495 9500
 Leu Asp Ala Gln Ile Gly Gln Leu Ala Ala Tyr Ala Asp Gly Arg Thr
 9505 9510 9515 9520
 Asp Val Asp Pro Ala Val Ala Ala Arg Ala Leu Val Asp Ser Arg Thr
 9525 9530 9535
 Ala Met Glu His Arg Ala Val Ala Val Gly Asp Ser Arg Glu Ala Leu
 9540 9545 9550
 Arg Asp Ala Leu Arg Met Pro Glu Gly Leu Val Arg Gly Thr Ser Ser
 9555 9560 9565
 Asp Val Gly Arg Val Ala Phe Val Phe Pro Gly Gln Gly Thr Gln Trp
 9570 9575 9580
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 Leu Glu Ala Val Val Arg Gln Glu Pro Gly Ala Pro Thr Leu Asp Arg
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 Lys Val Trp Gln His His Gly Ile Thr Pro Gln Ala Val Val Gly His
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 Ser Gln Gly Glu Ile Ala Ala Ala Tyr Val Ala Gly Ala Leu Thr Leu
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 Thr Gly Leu Gly Thr Leu Arg Arg Glu Gln Gly Gly Gln Glu Arg Leu
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Val Thr Ser Leu Ala Glu Ala Trp Ala Asn Gly Leu Thr Ile Asp Trp
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<211> 1248

<212> DNA

<213> *Streptomyces venezuelae*

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gtcgccgggc	tcgcccgggt	ccggcatgcc	gtggccacct	gcaacgccac	ggccgggctc	240
cagctcctcg	cgcacgccgc	cggcctcacc	ggcgaagtga	tcatgccgtc	gatgacgttc	300
gccgccaccc	cgcacgcact	gcgctggatc	ggcctcacc	cggtcttcgc	cgacatcgac	360
ccggacaccg	gcaacctcga	cccggaccag	gtggccgccc	cggtcacacc	ccgcacctcg	420
gccgtcgtcg	gcgtccacct	ctggggccgc	ccctgcgccc	ccgaccagct	gcggaaggctc	480
gccacgagc	acggcctgcg	gctgtacttc	gacgccgcgc	acgccctcgg	ctgcgcggtc	540
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<211> 415

<212> PRT

<213> Streptomyces venezuelae

<400> 8

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Arg Leu Tyr Glu Arg Leu Asp Arg Ala Leu Asp Ser Gln Trp Leu Ser
35     40     45
Asn Gly Gly Pro Leu Val Arg Glu Phe Glu Glu Arg Val Ala Gly Leu
50     55     60
Ala Gly Val Arg His Ala Val Ala Thr Cys Asn Ala Thr Ala Gly Leu
65     70     75     80
Gln Leu Leu Ala His Ala Ala Gly Leu Thr Gly Glu Val Ile Met Pro
85     90     95
Ser Met Thr Phe Ala Ala Thr Pro His Ala Leu Arg Trp Ile Gly Leu
100    105    110
Thr Pro Val Phe Ala Asp Ile Asp Pro Asp Thr Gly Asn Leu Asp Pro
115    120    125
Asp Gln Val Ala Ala Ala Val Thr Pro Arg Thr Ser Ala Val Val Gly
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Val His Leu Trp Gly Arg Pro Cys Ala Ala Asp Gln Leu Arg Lys Val
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Ala Asp Glu His Gly Leu Arg Leu Tyr Phe Asp Ala Ala His Ala Leu
165    170    175
Gly Cys Ala Val Asp Gly Arg Pro Ala Gly Ser Leu Gly Asp Ala Glu
180    185    190
Val Phe Ser Phe His Ala Thr Lys Ala Val Asn Ala Phe Glu Gly Gly
195    200    205
Ala Val Val Thr Asp Asp Ala Asp Leu Ala Ala Arg Ile Arg Ala Leu
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His Asn Phe Gly Phe Asp Leu Pro Gly Gly Ser Pro Ala Gly Gly Thr
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Asn Ala Lys Met Ser Glu Ala Ala Ala Ala Met Gly Leu Thr Ser Leu
245    250    255
Asp Ala Phe Pro Glu Val Ile Asp Arg Asn Arg Arg Asn His Ala Ala
260    265    270
Tyr Arg Glu His Leu Ala Asp Leu Pro Gly Val Leu Val Ala Asp His
275    280    285
Asp Arg His Gly Leu Asn Asn His Gln Tyr Val Ile Val Glu Ile Asp
290    295    300
Glu Ala Thr Thr Gly Ile His Arg Asp Leu Val Met Glu Val Leu Lys
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Ala Glu Gly Val His Thr Arg Ala Tyr Phe Ser Pro Gly Cys His Glu
325    330    335
Leu Glu Pro Tyr Arg Gly Gln Pro His Ala Pro Leu Pro His Thr Glu
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<210> 9
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 <213> Streptomyces venezuelae

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 Arg His Leu Val Arg Leu Ala Val Arg Tyr Gly Asn Ser Pro Phe Thr
 50 55 60
 Pro Leu Glu Glu Ala Arg His Asp Leu Gly Val Asp Arg Asp Ala Phe
 65 70 75 80
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 Val Glu Thr Gly Pro Ala Gly Ala Tyr Trp Lys Asn Thr Leu Leu Pro
 100 105 110

Leu Glu Gln Arg Gly Val Phe Asp Ala Ala Leu Ala Arg Lys Pro Val
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 Ala Gly Asn Pro Ser Ala Met Tyr Phe Ser Gly Gly Leu Glu Pro Leu
 180 185 190
 Thr Asn Pro Gly Leu Gly Ser Leu Ala Ala His Ala Thr Asp His Gly
 195 200 205
 Leu Arg Pro Thr Val Tyr Thr Asn Ser Phe Ala Leu Thr Glu Arg Thr
 210 215 220
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 225 230 235 240
 Leu Tyr Gly Leu Asn Asp Glu Glu Tyr Glu Gln Thr Thr Gly Lys Lys
 245 250 255
 Ala Ala Phe Arg Arg Val Arg Glu Asn Leu Arg Arg Phe Gln Gln Leu
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 Arg Ala Glu Arg Glu Ser Pro Ile Asn Leu Gly Phe Ala Tyr Ile Val
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 325 330 335
 Arg Ala Glu Leu Gln Glu Ala Leu Asn Ala Phe Glu Glu Arg Val Arg
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 Glu Arg Thr Pro Gly Leu His Ile Asp Tyr Gly Tyr Ala Leu Asn Ser
 355 360 365
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 370 375 380
 Met Arg Pro Thr Ala His Pro Gln Val Ala Val Gln Val Asp Leu Leu
 385 390 395 400
 Gly Asp Val Tyr Leu Tyr Arg Glu Ala Gly Phe Pro Asp Leu Asp Gly
 405 410 415
 Ala Thr Arg Tyr Ile Ala Gly Arg Val Thr Pro Asp Thr Ser Leu Thr
 420 425 430
 Glu Val Val Arg Asp Phe Val Glu Arg Gly Gly Glu Val Ala Ala Val
 435 440 445
 Asp Gly Asp Glu Tyr Phe Met Asp Gly Phe Asp Gln Val Val Thr Ala
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 Arg Leu Asn Gln Leu Glu Arg Asp Ala Ala Asp Gly Trp Glu Glu Ala
 465 470 475 480
 Arg Gly Phe Leu Arg
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<210> 11

<211> 879

<212> DNA

<213> Streptomyces venezuelae

<400> 11

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ctcatgctcg	gcggtattcg	cgagattcaa	atcatctcga	ccccccagca	catcgaactc	180
ttccagtcgc	ttctcggaaa	cggcaggcac	ctgggaatag	aactcgacta	tgcggtccag	240
aaagagcccg	caggaatcgc	ggacgcactt	ctcgtcggag	ccgagcacat	cggcgacgac	300
acctgcgccc	tgatcctggg	cgacaacatc	ttccacgggc	ccggcctcta	cacgtcctg	360
cgggacagca	tcgcgcgcct	cgacggctgc	gtgctcttcg	gctaccgggt	caaggacccc	420

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gagcgggtacg gcgtcgccga ggtggacgcg acggggccggc tgaccgacct cgtcgagaag 480
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gtcgacatcg ccaagaacat ccggccctcg ccgcgcggcg agctggagat caccgacgtc 600
aaccgcgtct acctggagcg gggccggggc gaactcgtca acctggggccg cggcttcgcc 660
tggctggaca ccggcaccca cgactcgctc ctgcggggccg cccagtacgt ccaggtcctg 720
gaggagcggc agggcgctctg gatcgcgggc cttgaggaga tcgccttccg catgggcttc 780
atcgacgccg aggcctgtca cggcctggga gaaggcctct cccgcaccga gtacggcagc 840
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<210> 12
<211> 292
<212> PRT
<213> Streptomyces venezuelae

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35 40 45
Ile Gln Ile Ile Ser Thr Pro Gln His Ile Glu Leu Phe Gln Ser Leu
50 55 60
Leu Gly Asn Gly Arg His Leu Gly Ile Glu Leu Asp Tyr Ala Val Gln
65 70 75 80
Lys Glu Pro Ala Gly Ile Ala Asp Ala Leu Val Gly Ala Glu His
85 90 95
Ile Gly Asp Asp Thr Cys Ala Leu Ile Leu Gly Asp Asn Ile Phe His
100 105 110
Gly Pro Gly Leu Tyr Thr Leu Leu Arg Asp Ser Ile Ala Arg Leu Asp
115 120 125
Gly Cys Val Leu Phe Gly Tyr Pro Val Lys Asp Pro Glu Arg Tyr Gly
130 135 140
Val Ala Glu Val Asp Ala Thr Gly Arg Leu Thr Asp Leu Val Glu Lys
145 150 155 160
Pro Val Lys Pro Arg Ser Asn Leu Ala Val Thr Gly Leu Tyr Leu Tyr
165 170 175
Asp Asn Asp Val Val Asp Ile Ala Lys Asn Ile Arg Pro Ser Pro Arg
180 185 190
Gly Glu Leu Glu Ile Thr Asp Val Asn Arg Val Tyr Leu Glu Arg Gly
195 200 205
Arg Ala Glu Leu Val Asn Leu Gly Arg Gly Phe Ala Trp Leu Asp Thr
210 215 220
Gly Thr His Asp Ser Leu Leu Arg Ala Ala Gln Tyr Val Gln Val Leu
225 230 235 240
Glu Glu Arg Gln Gly Val Trp Ile Ala Gly Leu Glu Glu Ile Ala Phe
245 250 255
Arg Met Gly Phe Ile Asp Ala Glu Ala Cys His Gly Leu Gly Glu Gly
260 265 270
Leu Ser Arg Thr Glu Tyr Gly Ser Tyr Leu Met Glu Ile Ala Gly Arg
275 280 285
Glu Gly Ala Pro
290

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<210> 13
<211> 1014
<212> DNA
<213> Streptomyces venezuelae

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<400> 13
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ctcgccgggg cgtaccccga cgtgcccgcc gatgagggtga tcgtcctgga cagcctcacc 120

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tacgcgggca	accgcgccaa	cctcgccccg	gtggacgcgg	accgcgact	gcgcttcgtc	180
cacggcgaca	tccgcgacgc	cggcctcctc	gccccgggaa	tgcgcggcgt	ggacgccatc	240
gtccacttcg	cggccgagag	ccacgtggac	cgctccatcg	cgggcgcgtc	cgtgttcacc	300
gagaccaacg	tgcagggcac	gcagacgctg	ctccagtgcg	ccgtcgacgc	cggcgctcggc	360
cgggtcgtgc	acgtctccac	cgacgaggtg	tacgggtcga	tcgactccgg	ctcctggacc	420
gagagcagcc	cgctggagcc	caactcgccc	tacgcggcgt	ccaaggccgg	ctccgacctc	480
gttgcccgcg	cctaccaccg	gacgtacggc	ctcgacgtac	ggatcaccgc	ctgctgcaac	540
aactacgggc	cgtaccagca	ccccgagaag	ctcatccccc	tcttcgtgac	gaacctcctc	600
gacggcgggg	cgctcccgcg	gtacggcgac	ggcgcgaaac	tccgcgagtg	ggtgcacacc	660
gacgaccact	gccggggcat	cgcgctcgtc	ctcgcgggcg	gccggggccg	cgagatctac	720
cacatcgggc	gcggcgctga	gctgaccaac	cgcgaactca	ccggcatcct	cctggactcg	780
ctcggcgccg	actggctctc	ggtccggaag	gtcgccgacc	gcaagggcca	cgacctgcgc	840
tactccctcg	acggcggcga	gatcgagcgc	gagctcggtc	accgcccgca	ggtctccttc	900
gcggacggcc	tcgcgcggac	cgtccgctgg	taccgggaga	accgcggtcg	gtgggagccg	960
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<210> 14

<211> 337

<212> PRT

<213> Streptomyces venezuelae

<400> 14

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Val	Arg	Gln	Leu	Leu	Ala	Gly	Ala	Tyr	Pro	Asp	Val	Pro	Ala	Asp	Glu
		20						25					30		
Val	Ile	Val	Leu	Asp	Ser	Leu	Thr	Tyr	Ala	Gly	Asn	Arg	Ala	Asn	Leu
		35					40					45			
Ala	Pro	Val	Asp	Ala	Asp	Pro	Arg	Leu	Arg	Phe	Val	His	Gly	Asp	Ile
	50					55				60					
Arg	Asp	Ala	Gly	Leu	Leu	Ala	Arg	Glu	Leu	Arg	Gly	Val	Asp	Ala	Ile
65					70					75				80	
Val	His	Phe	Ala	Ala	Glu	Ser	His	Val	Asp	Arg	Ser	Ile	Ala	Gly	Ala
			85					90					95		
Ser	Val	Phe	Thr	Glu	Thr	Asn	Val	Gln	Gly	Thr	Gln	Thr	Leu	Leu	Gln
			100					105					110		
Cys	Ala	Val	Asp	Ala	Gly	Val	Gly	Arg	Val	Val	His	Val	Ser	Thr	Asp
		115					120					125			
Glu	Val	Tyr	Gly	Ser	Ile	Asp	Ser	Gly	Ser	Trp	Thr	Glu	Ser	Ser	Pro
	130					135					140				
Leu	Glu	Pro	Asn	Ser	Pro	Tyr	Ala	Ala	Ser	Lys	Ala	Gly	Ser	Asp	Leu
145					150					155					160
Val	Ala	Arg	Ala	Tyr	His	Arg	Thr	Tyr	Gly	Leu	Asp	Val	Arg	Ile	Thr
			165					170						175	
Arg	Cys	Cys	Asn	Asn	Tyr	Gly	Pro	Tyr	Gln	His	Pro	Glu	Lys	Leu	Ile
			180					185					190		
Pro	Leu	Phe	Val	Thr	Asn	Leu	Leu	Asp	Gly	Gly	Thr	Leu	Pro	Leu	Tyr
		195					200					205			
Gly	Asp	Gly	Ala	Asn	Val	Arg	Glu	Trp	Val	His	Thr	Asp	Asp	His	Cys
	210					215					220				
Arg	Gly	Ile	Ala	Leu	Val	Leu	Ala	Gly	Gly	Arg	Ala	Gly	Glu	Ile	Tyr
225					230					235					240
His	Ile	Gly	Gly	Gly	Leu	Glu	Leu	Thr	Asn	Arg	Glu	Leu	Thr	Gly	Ile
			245						250					255	
Leu	Leu	Asp	Ser	Leu	Gly	Ala	Asp	Trp	Ser	Ser	Val	Arg	Lys	Val	Ala
			260					265					270		
Asp	Arg	Lys	Gly	His	Asp	Leu	Arg	Tyr	Ser	Leu	Asp	Gly	Gly	Glu	Ile
		275					280					285			
Glu	Arg	Glu	Leu	Gly	Tyr	Arg	Pro	Gln	Val	Ser	Phe	Ala	Asp	Gly	Leu
	290					295					300				
Ala	Arg	Thr	Val	Arg	Trp	Tyr	Arg	Glu	Asn	Arg	Gly	Trp	Trp	Glu	Pro
305					310					315					320

Leu Lys Ala Thr Ala Pro Gln Leu Pro Ala Thr Ala Val Glu Val Ser
325 330 335
Ala

<210> 15
<211> 1140
<212> DNA
<213> Streptomyces venezuelae

<400> 15
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gagctccgcg cggagaccga cgccgcgata gcccgcgtcc tcgactcggg gcgctacctc 120
ctcggaccgg aactcgaagg attcgaggcg gagttcgccg cgtactgcga gacggaccac 180
gccgtcggcg tgaacagcgg gatggacgcc ctccagctcg ccctccgcgg cctcggcatc 240
ggacccgggg acgaggtgat cgtcccctcg cacacgtaca tcgccagctg gctcgcggtg 300
tccgccaccg gcgcgacccc cgtgcccgctc gagccgcacg aggaccaccc caccctggac 360
ccgctgctcg tcgagaaggc gatcaccccc cgcacccggg cgctcctccc cgtccacctc 420
tacgggcacc ccgccgacat ggacgccttc cgcgagctcg cggaccggca cggcctgcac 480
atcgctcagg acgccgcgca ggcccacggc gcccgctacc ggggcccggc gatcggcgcc 540
gggtcgtcgg tggccgcggt cagcttctac ccgggcaaga acctcggctg cttcggcgac 600
ggcggcgccg tcgtcacccg cgaccccagag ctgcgccgaac ggctccggat gctccgcaac 660
tacggctcgc ggcagaagta cagccacgag acgaagggca ccaactcccg cctggacgag 720
atgcaggccg ccgtgctgcg gatccggctc gccacctgg acagctggaa cggccgcagg 780
tcggcgctgg ccgcggagta cctctccggg ctgcgccgac tgcccggcat cggcctgccg 840
gtgaccgcgc ccgacaccga cccggtctgg cacctcttca ccgtgcgcac cgagcgccgc 900
gacgagctgc gcagccacct cgacgcccgc ggcatcgaca cctcacgca ctaccggta 960
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gccgagagct tcgcgcggca ggtcctcagc ctgccgatcg gccgcacct ggagcgccg 1080
caggcgctgc ggggtgatcga cgccgtgcgc gaatggggccg agcgggtcga ccaggcctag 1140

<210> 16
<211> 379
<212> PRT
<213> Streptomyces venezuelae

<400> 16
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Val Leu Asp Ser Gly Arg Tyr Leu Leu Gly Pro Glu Leu Gly Phe
35 40 45
Glu Ala Glu Phe Ala Ala Tyr Cys Glu Thr Asp His Ala Val Gly Val
50 55 60
Asn Ser Gly Met Asp Ala Leu Gln Leu Ala Leu Arg Gly Leu Gly Ile
65 70 75 80
Gly Pro Gly Asp Glu Val Ile Val Pro Ser His Thr Tyr Ile Ala Ser
85 90 95
Trp Leu Ala Val Ser Ala Thr Gly Ala Thr Pro Val Pro Val Glu Pro
100 105 110
His Glu Asp His Pro Thr Leu Asp Pro Leu Leu Val Glu Lys Ala Ile
115 120 125
Thr Pro Arg Thr Arg Ala Leu Leu Pro Val His Leu Tyr Gly His Pro
130 135 140
Ala Asp Met Asp Ala Leu Arg Glu Leu Ala Asp Arg His Gly Leu His
145 150 155 160
Ile Val Glu Asp Ala Ala Gln Ala His Gly Ala Arg Tyr Arg Gly Arg
165 170 175
Arg Ile Gly Ala Gly Ser Ser Val Ala Ala Phe Ser Phe Tyr Pro Gly
180 185 190

Lys	Asn	Leu	Gly	Cys	Phe	Gly	Asp	Gly	Gly	Ala	Val	Val	Thr	Gly	Asp
	195						200					205			
Pro	Glu	Leu	Ala	Glu	Arg	Leu	Arg	Met	Leu	Arg	Asn	Tyr	Gly	Ser	Arg
	210					215					220				
Gln	Lys	Tyr	Ser	His	Glu	Thr	Lys	Gly	Thr	Asn	Ser	Arg	Leu	Asp	Glu
225					230					235				240	
Met	Gln	Ala	Ala	Val	Leu	Arg	Ile	Arg	Leu	Ala	His	Leu	Asp	Ser	Trp
				245					250				255		
Asn	Gly	Arg	Arg	Ser	Ala	Leu	Ala	Ala	Glu	Tyr	Leu	Ser	Gly	Leu	Ala
			260					265					270		
Gly	Leu	Pro	Gly	Ile	Gly	Leu	Pro	Val	Thr	Ala	Pro	Asp	Thr	Asp	Pro
		275					280					285			
Val	Trp	His	Leu	Phe	Thr	Val	Arg	Thr	Glu	Arg	Arg	Asp	Glu	Leu	Arg
	290					295					300				
Ser	His	Leu	Asp	Ala	Arg	Gly	Ile	Asp	Thr	Leu	Thr	His	Tyr	Pro	Val
305					310					315				320	
Pro	Val	His	Leu	Ser	Pro	Ala	Tyr	Ala	Gly	Glu	Ala	Pro	Pro	Glu	Gly
				325					330					335	
Ser	Leu	Pro	Arg	Ala	Glu	Ser	Phe	Ala	Arg	Gln	Val	Leu	Ser	Leu	Pro
			340					345					350		
Ile	Gly	Pro	His	Leu	Glu	Arg	Pro	Gln	Ala	Leu	Arg	Val	Ile	Asp	Ala
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Val	Arg	Glu	Trp	Ala	Glu	Arg	Val	Asp	Gln	Ala					
	370					375									

<210> 17

<211> 714

<212> DNA

<213> Streptomyces venezuelae

<400> 17

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tcgctcctgg	acgtggcctg	cggtaggggc	acgcactctg	agcacttcac	caaggagttc	180
ggcgacaccg	ccggcctgga	gctgtccgag	gacatgctca	cccacgccc	caagcggctg	240
cccgcgcca	cgctccacca	ggcgacatg	cgggacttcc	ggctcggccg	gaagttctcc	300
gccgtgggtca	gcatgttcag	ctccgtcggc	tacctgaaga	cgaccgagga	actcggcgcg	360
gccgtcgccct	cgctcgcgga	gcacctggag	cccgggtggcg	tcgtcgtcgt	cgagccgtgg	420
tggttcccgg	agaccttcgc	cgacggctgg	gtcagcgccg	acgtcgtccg	ccgtgacggg	480
cgcaccgtgg	cccgtgtctc	gcaactcggg	cgggagggga	acgcgacgcg	catggaggtc	540
cacttcaccg	tggccgaccc	gggcaagggc	gtgcggcact	tctccgacgt	ccatctcatc	600
accctgttcc	accaggccga	gtacgaggcc	gcgttcacgg	ccgccgggct	gcgcgtcgag	660
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<210> 18

<211> 237

<212> PRT

<213> Streptomyces venezuelae

<400> 18

Met	Tyr	Glu	Val	Asp	His	Ala	Asp	Val	Tyr	Asp	Leu	Phe	Tyr	Leu	Gly
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Arg	Gly	Lys	Asp	Tyr	Ala	Ala	Glu	Ala	Ser	Asp	Ile	Ala	Asp	Leu	Val
			20					25					30		
Arg	Ser	Arg	Thr	Pro	Glu	Ala	Ser	Ser	Leu	Leu	Asp	Val	Ala	Cys	Gly
			35				40					45			
Thr	Gly	Thr	His	Leu	Glu	His	Phe	Thr	Lys	Glu	Phe	Gly	Asp	Thr	Ala
	50					55					60				
Gly	Leu	Glu	Leu	Ser	Glu	Asp	Met	Leu	Thr	His	Ala	Arg	Lys	Arg	Leu
65					70					75				80	
Pro	Asp	Ala	Thr	Leu	His	Gln	Gly	Asp	Met	Arg	Asp	Phe	Arg	Leu	Gly
				85					90					95	

Arg	Lys	Phe	Ser	Ala	Val	Val	Ser	Met	Phe	Ser	Ser	Val	Gly	Tyr	Leu
			100					105					110		
Lys	Thr	Thr	Glu	Glu	Leu	Gly	Ala	Ala	Val	Ala	Ser	Phe	Ala	Glu	His
			115				120					125			
Leu	Glu	Pro	Gly	Gly	Val	Val	Val	Val	Glu	Pro	Trp	Trp	Phe	Pro	Glu
			130				135				140				
Thr	Phe	Ala	Asp	Gly	Trp	Val	Ser	Ala	Asp	Val	Val	Arg	Arg	Asp	Gly
145					150					155				160	
Arg	Thr	Val	Ala	Arg	Val	Ser	His	Ser	Val	Arg	Glu	Gly	Asn	Ala	Thr
				165					170				175		
Arg	Met	Glu	Val	His	Phe	Thr	Val	Ala	Asp	Pro	Gly	Lys	Gly	Val	Arg
			180					185				190			
His	Phe	Ser	Asp	Val	His	Leu	Ile	Thr	Leu	Phe	His	Gln	Ala	Glu	Tyr
			195				200					205			
Glu	Ala	Ala	Phe	Thr	Ala	Ala	Gly	Leu	Arg	Val	Glu	Tyr	Leu	Glu	Gly
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225					230					235					

<210> 19
 <211> 1281
 <212> DNA
 <213> Streptomyces venezuelae

<400> 19																							
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ga	gt	ac	cc	gg	gg	tc	gc	gg	cg	gc	gc	gc	gc	gc	gc	gc	ac	cg	gc	gc	gc	gc	240
ga	gg	cc	cg	tc	cg	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	300
cc	gt	ac	tt	tc	cg	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	360
cg	gt	ct	tg	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	420
gc	cc	ag	gt	tc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	480
gc	cc	gc	cg	ca	ag	tt	cg	tc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	540
ac	cg	cg	ga	gt	gg	tc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	600
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ga	gt	ct	gc	tc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	900
ac	cc	gg	tt	tc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	960
ca	cc	ac	gg	cg	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	1020
ct	cg	cc	ga	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	1080
tt	ct	tc	ct	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	1140
ct	cg	ac	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	1200
cc	ca	cc	cc	cg	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	1260
cc	gg	cc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	gc	1281

<210> 20
 <211> 426
 <212> PRT
 <213> Streptomyces venezuelae

<400> 20															
Met	Arg	Val	Leu	Leu	Thr	Ser	Phe	Ala	His	His	Thr	His	Tyr	Tyr	Gly
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Leu	Val	Pro	Leu	Ala	Trp	Ala	Leu	Leu	Ala	Ala	Gly	His	Glu	Val	Arg
			20					25				30			
Val	Ala	Ser	Gln	Pro	Ala	Leu	Thr	Asp	Thr	Ile	Thr	Gly	Ser	Gly	Leu
		35					40				45				
Ala	Ala	Val	Pro	Val	Gly	Thr	Asp	His	Leu	Ile	His	Glu	Tyr	Arg	Val
50						55					60				

Arg Met Ala Gly Glu Pro Arg Pro Asn His Pro Ala Ile Ala Phe Asp
 65 70 75 80
 Glu Ala Arg Pro Glu Pro Leu Asp Trp Asp His Ala Leu Gly Ile Glu
 85 90 95
 Ala Ile Leu Ala Pro Tyr Phe His Leu Leu Ala Asn Asn Asp Ser Met
 100 105 110
 Val Asp Asp Leu Val Asp Phe Ala Arg Ser Trp Gln Pro Asp Leu Val
 115 120 125
 Leu Trp Glu Pro Thr Thr Tyr Ala Gly Ala Val Ala Ala Gln Val Thr
 130 135 140
 Gly Ala Ala His Ala Arg Val Leu Trp Gly Pro Asp Val Met Gly Ser
 145 150 155 160
 Ala Arg Arg Lys Phe Val Ala Leu Arg Asp Arg Gln Pro Pro Glu His
 165 170 175
 Arg Glu Asp Pro Thr Ala Glu Trp Leu Thr Trp Thr Leu Asp Arg Tyr
 180 185 190
 Gly Ala Ser Phe Glu Glu Glu Leu Leu Thr Gly Gln Phe Thr Ile Asp
 195 200 205
 Pro Thr Pro Pro Ser Leu Arg Leu Asp Thr Gly Leu Pro Thr Val Gly
 210 215 220
 Met Arg Tyr Val Pro Tyr Asn Gly Thr Ser Val Val Pro Asp Trp Leu
 225 230 235 240
 Ser Glu Pro Pro Ala Arg Pro Arg Val Cys Leu Thr Leu Gly Val Ser
 245 250 255
 Ala Arg Glu Val Leu Gly Gly Asp Gly Val Ser Gln Gly Asp Ile Leu
 260 265 270
 Glu Ala Leu Ala Asp Leu Asp Ile Glu Leu Val Ala Thr Leu Asp Ala
 275 280 285
 Ser Gln Arg Ala Glu Ile Arg Asn Tyr Pro Lys His Thr Arg Phe Thr
 290 295 300
 Asp Phe Val Pro Met His Ala Leu Leu Pro Ser Cys Ser Ala Ile Ile
 305 310 315 320
 His His Gly Gly Ala Gly Thr Tyr Ala Thr Ala Val Ile Asn Ala Val
 325 330 335
 Pro Gln Val Met Leu Ala Glu Leu Trp Asp Ala Pro Val Lys Ala Arg
 340 345 350
 Ala Val Ala Glu Gln Gly Ala Gly Phe Phe Leu Pro Pro Ala Glu Leu
 355 360 365
 Thr Pro Gln Ala Val Arg Asp Ala Val Val Arg Ile Leu Asp Asp Pro
 370 375 380
 Ser Val Ala Thr Ala Ala His Arg Leu Arg Glu Thr Phe Gly Asp
 385 390 395 400
 Pro Thr Pro Ala Gly Ile Val Pro Glu Leu Glu Arg Leu Ala Ala Gln
 405 410 415
 His Arg Arg Pro Pro Ala Asp Ala Arg His
 420 425

<210> 21

<211> 1209

<212> DNA

<213> *Streptomyces venezuelae*

<400> 21

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gccgcgaacg	gcgaccgta	cgccaccgtg	ctgcgcggcc	aggcggacga	cccgtatccc	180
gcgtacgagc	gggtgcgtgc	ccgcggcgcg	ctctccttca	gcccgcggg	cagctgggtc	240
accgccgatc	acgccctggc	ggcgagcatc	ctctgctcga	cggacttcgg	ggctctccggc	300
gccgacggcg	tcccgggtgcc	gcagcaggtc	ctctcgtacg	gggagggctg	tccgctggag	360
cgcgacgagg	tgctgcgggc	ggccgggtgac	gtgccggagg	gcgggcagcg	tgccgtggtc	420
gaggggatcc	accgggagac	gctggagggt	ctcgcgccgg	accgctcggc	gtcgtacgcc	480
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<210> 22
<211> 402
<212> PRT
<213> Streptomyces venezuelae
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72

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Pro Val Ala Ser Leu Val Arg Leu Gln Ala Glu Val Ala Leu Arg Thr
355 360 365
Leu Ala Gly Arg Phe Pro Gly Leu Arg Gln Ala Gly Asp Val Leu Arg
370 375 380
Pro Arg Arg Ala Pro Val Gly Arg Gly Pro Leu Ser Val Pro Val Ser
385 390 395 400
Ser Ser

<210> 23
<211> 2430
<212> DNA
<213> Streptomyces venezuelae

<400> 23
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gccgccgaca cgccaatgt tcagtacacg agccgggcgg cggagctcgt cgcccagatg 180
acgctcgacg agaagatcag cttcgtccac tgggcgctgg acccgaccg gcagaacgtc 240
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aacggcatcc gcctggtggg gcagaccgcc accgcgtgc ccgcgcgggt cgccctggcc 360
agcaccttcg acgacaccat ggccgacagc tacggcaagg tcatgggccc cgacggtcgc 420
gcgtcaacc aggacatggt cctgggcccg atgatgaaca acatccgggt gccgcacggc 480
ggccggaact acgagacctt cagcgaggac cccctggtct cctcgcgcac cgcggtcgcc 540
cagatcaagg gcatccaggg tgcgggtctg atgaccacgg ccaagcactt cgcggccaac 600
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<210> 24
 <211> 809
 <212> PRT
 <213> Streptomyces venezuelae

<400> 24
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 Pro Arg Ala Phe Thr Leu Ala Val Val Gly Thr Leu Leu Ala Gly Thr
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 Thr Val Ala Ala Ala Pro Gly Ala Ala Asp Thr Ala Asn Val Gln
 35 40 45
 Tyr Thr Ser Arg Ala Ala Glu Leu Val Ala Gln Met Thr Leu Asp Glu
 50 55 60
 Lys Ile Ser Phe Val His Trp Ala Leu Asp Pro Asp Arg Gln Asn Val
 65 70 75 80
 Gly Tyr Leu Pro Gly Val Pro Arg Leu Gly Ile Pro Glu Leu Arg Ala
 85 90 95
 Ala Asp Gly Pro Asn Gly Ile Arg Leu Val Gly Gln Thr Ala Thr Ala
 100 105 110
 Leu Pro Ala Pro Val Ala Leu Ala Ser Thr Phe Asp Asp Thr Met Ala
 115 120 125
 Asp Ser Tyr Gly Lys Val Met Gly Arg Asp Gly Arg Ala Leu Asn Gln
 130 135 140
 Asp Met Val Leu Gly Pro Met Met Asn Asn Ile Arg Val Pro His Gly
 145 150 155 160
 Gly Arg Asn Tyr Glu Thr Phe Ser Glu Asp Pro Leu Val Ser Ser Arg
 165 170 175
 Thr Ala Val Ala Gln Ile Lys Gly Ile Gln Gly Ala Gly Leu Met Thr
 180 185 190
 Thr Ala Lys His Phe Ala Ala Asn Asn Gln Glu Asn Asn Arg Phe Ser
 195 200 205
 Val Asn Ala Asn Val Asp Glu Gln Thr Leu Arg Glu Ile Glu Phe Pro
 210 215 220
 Ala Phe Glu Ala Ser Ser Lys Ala Gly Ala Ala Ser Phe Met Cys Ala
 225 230 235 240
 Tyr Asn Gly Leu Asn Gly Lys Pro Ser Cys Gly Asn Asp Glu Leu Leu
 245 250 255
 Asn Asn Val Leu Arg Thr Gln Trp Gly Phe Gln Gly Trp Val Met Ser
 260 265 270
 Asp Trp Leu Ala Thr Pro Gly Thr Asp Ala Ile Thr Lys Gly Leu Asp
 275 280 285
 Gln Glu Met Gly Val Glu Leu Pro Gly Asp Val Pro Lys Gly Glu Pro
 290 295 300
 Ser Pro Pro Ala Lys Phe Phe Gly Glu Ala Leu Lys Thr Ala Val Leu
 305 310 315 320
 Asn Gly Thr Val Pro Glu Ala Ala Val Thr Arg Ser Ala Glu Arg Ile
 325 330 335
 Val Gly Gln Met Glu Lys Phe Gly Leu Leu Leu Ala Thr Pro Ala Pro
 340 345 350
 Arg Pro Glu Arg Asp Lys Ala Gly Ala Gln Ala Val Ser Arg Lys Val
 355 360 365
 Ala Glu Asn Gly Ala Val Leu Leu Arg Asn Glu Gly Gln Ala Leu Pro
 370 375 380
 Leu Ala Gly Asp Ala Gly Lys Ser Ile Ala Val Ile Gly Pro Thr Ala
 385 390 395 400
 Val Asp Pro Lys Val Thr Gly Leu Gly Ser Ala His Val Val Pro Asp
 405 410 415
 Ser Ala Ala Ala Pro Leu Asp Thr Ile Lys Ala Arg Ala Gly Ala Gly
 420 425 430
 Ala Thr Val Thr Tyr Glu Thr Gly Glu Glu Thr Phe Gly Thr Gln Ile
 435 440 445

Pro Ala Gly Asn Leu Ser Pro Ala Phe Asn Gln Gly His Gln Leu Glu
 450 455 460
 Pro Gly Lys Ala Gly Ala Leu Tyr Asp Gly Thr Leu Thr Val Pro Ala
 465 470 475 480
 Asp Gly Glu Tyr Arg Ile Ala Val Arg Ala Thr Gly Gly Tyr Ala Thr
 485 490 495
 Val Gln Leu Gly Ser His Thr Ile Glu Ala Gly Gln Val Tyr Gly Lys
 500 505 510
 Val Ser Ser Pro Leu Leu Lys Leu Thr Lys Gly Thr His Lys Leu Thr
 515 520 525
 Ile Ser Gly Phe Ala Met Ser Ala Thr Pro Leu Ser Leu Glu Leu Gly
 530 535 540
 Trp Val Thr Pro Ala Ala Ala Asp Ala Thr Ile Ala Lys Ala Val Glu
 545 550 555 560
 Ser Ala Arg Lys Ala Arg Thr Ala Val Val Phe Ala Tyr Asp Asp Gly
 565 570 575
 Thr Glu Gly Val Asp Arg Pro Asn Leu Ser Leu Pro Gly Thr Gln Asp
 580 585 590
 Lys Leu Ile Ser Ala Val Ala Asp Ala Asn Pro Asn Thr Ile Val Val
 595 600 605
 Leu Asn Thr Gly Ser Ser Val Leu Met Pro Trp Leu Ser Lys Thr Arg
 610 615 620
 Ala Val Leu Asp Met Trp Tyr Pro Gly Gln Ala Gly Ala Glu Ala Thr
 625 630 635 640
 Ala Ala Leu Leu Tyr Gly Asp Val Asn Pro Ser Gly Lys Leu Thr Gln
 645 650 655
 Ser Phe Pro Ala Ala Glu Asn Gln His Ala Val Ala Gly Asp Pro Thr
 660 665 670
 Ser Tyr Pro Gly Val Asp Asn Gln Gln Thr Tyr Arg Glu Gly Ile His
 675 680 685
 Val Gly Tyr Arg Trp Phe Asp Lys Glu Asn Val Lys Pro Leu Phe Pro
 690 695 700
 Phe Gly His Gly Leu Ser Tyr Thr Ser Phe Thr Gln Ser Ala Pro Thr
 705 710 715 720
 Val Val Arg Thr Ser Thr Gly Gly Leu Lys Val Thr Val Thr Val Arg
 725 730 735
 Asn Ser Gly Lys Arg Ala Gly Gln Glu Val Val Gln Ala Tyr Leu Gly
 740 745 750
 Ala Ser Pro Asn Val Thr Ala Pro Gln Ala Lys Lys Lys Leu Val Gly
 755 760 765
 Tyr Thr Lys Val Ser Leu Ala Ala Gly Glu Ala Lys Thr Val Thr Val
 770 775 780
 Asn Val Asp Arg Arg Gln Leu Gln Thr Gly Ser Ser Ser Ala Asp Leu
 785 790 795 800
 Arg Gly Ser Ala Thr Val Asn Val Trp
 805

<210> 25

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> A consensus sequence.

<221> VARIANT

<222> (4)...(4)

<223> Residue 4 is either V or I.

<400> 25

Leu Leu Asp Val Ala Cys Gly Thr Gly
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<210> 26
 <211> 1011
 <212> DNA
 <213> Streptomyces venezuelae

<400> 26
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 gacggtagga acgttctcga aatcggtccc ggaaagggcg cgataaccga ggagttgggtg 180
 cgctccttcg acaccgtgac ggtcgtggag atggaccgcg actggggccgc gcatgtgcgg 240
 cggaaattcg aaggggagag ggtcaccgta ttccaggggtg atttcctcga cttccgcatt 300
 ccgcgcgata tcgacaccgt cgtcggaaac gttcccttcg gcatcacgac ccagattctc 360
 cggagtctcc tggaatcgac gaactggcag tcggcgggccc tgatagtgca gtgggaggtc 420
 gcccgcaaac gcgcgggtcg cagcggcgga tcgctcctca cgacctctg gggcccttg 480
 tacgagttcg cgggtccacga ccgcgtccgc gcctcgtcgt tccgtccgat gccccgcgtc 540
 gacggcgggc tcctgacgat caggcgacgc cccagcccc tgctgcccga gagcgcgagc 600
 cgcgcttcc agaacttcgc cgaagccgtc ttcaccggcc ccggacgggg cctcgcggag 660
 atctcctggc gccacatccc caagcggacc taccgttccc tcgccgaccg ccacggaatt 720
 ccggacggcg gactgccgaa ggacctcacg ctcaccaat ggatcgccct tttccaggcc 780
 tcccagccga gttacgcgcc gggggcgccc ggcacgcgca tgccgggcca gggcggtggc 840
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 tacggcccca cgcgcggcgg cgaaccctgc gcaccccgcg cacaggtccg gcagaccaag 960
 ggccgccagg gcgcgcgagg ctctcgtac ggacgcgca cgggccgtta g 1011

<210> 27
 <211> 336
 <212> PRT
 <213> Streptomyces venezuelae

<400> 27
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 20 25 30
 Asn Leu Val Thr His Val Glu Gly Asp Gly Arg Asn Val Leu Glu Ile
 35 40 45
 Gly Pro Gly Lys Gly Ala Ile Thr Glu Glu Leu Val Arg Ser Phe Asp
 50 55 60
 Thr Val Thr Val Val Glu Met Asp Pro His Trp Ala Ala His Val Arg
 65 70 75 80
 Arg Lys Phe Glu Gly Glu Arg Val Thr Val Phe Gln Gly Asp Phe Leu
 85 90 95
 Asp Phe Arg Ile Pro Arg Asp Ile Asp Thr Val Val Gly Asn Val Pro
 100 105 110
 Phe Gly Ile Thr Thr Gln Ile Leu Arg Ser Leu Leu Glu Ser Thr Asn
 115 120 125
 Trp Gln Ser Ala Ala Leu Ile Val Gln Trp Glu Val Ala Arg Lys Arg
 130 135 140
 Ala Gly Arg Ser Gly Gly Ser Leu Leu Thr Thr Ser Trp Ala Pro Trp
 145 150 155 160
 Tyr Glu Phe Ala Val His Asp Arg Val Arg Ala Ser Ser Phe Arg Pro
 165 170 175
 Met Pro Arg Val Asp Gly Gly Val Leu Thr Ile Arg Arg Arg Pro Gln
 180 185 190
 Pro Leu Leu Pro Glu Ser Ala Ser Arg Ala Phe Gln Asn Phe Ala Glu
 195 200 205
 Ala Val Phe Thr Gly Pro Gly Arg Gly Leu Ala Glu Ile Leu Arg Arg
 210 215 220
 His Ile Pro Lys Arg Thr Tyr Arg Ser Leu Ala Asp Arg His Gly Ile
 225 230 235 240
 Pro Asp Gly Gly Leu Pro Lys Asp Leu Thr Leu Thr Gln Trp Ile Ala
 245 250 255

Leu	Phe	Gln	Ala	Ser	Gln	Pro	Ser	Tyr	Ala	Pro	Gly	Ala	Pro	Gly	Thr
			260					265					270		
Arg	Met	Pro	Gly	Gln	Gly	Gly	Gly	Ala	Gly	Gly	Arg	Asp	Tyr	Asp	Ser
		275					280					285			
Glu	Thr	Ser	Arg	Ala	Ala	Val	Pro	Gly	Ser	Arg	Arg	Tyr	Gly	Pro	Thr
	290					295					300				
Arg	Gly	Gly	Glu	Pro	Cys	Ala	Pro	Arg	Ala	Gln	Val	Arg	Gln	Thr	Lys
305					310					315					320
Gly	Arg	Gln	Gly	Ala	Arg	Gly	Ser	Ser	Tyr	Gly	Arg	Arg	Thr	Gly	Arg
			325						330					335	

<210> 28
 <211> 969
 <212> DNA
 <213> Streptomyces venezuelae

<400> 28										
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ggtcggggtg	acggcgccct	gaccctgccg	ctgagcaggc	acggcaggcc	gatcaccgcc					180
gtcgagctcg	acggcggcg	cgcgcagcgc	ctcgggtgcc	gcaccccg	tcagtgtgacc					240
gtgggtgacc	acgacttcct	gcagtaccgc	ctgccgcgca	acccgcatgt	ggtcgtcggc					300
aacgtcccct	tccatctgac	gacggcgatc	atgcggcggc	tgctcgacgc	ccagcactgg					360
cacaccgccg	tcctcctcgt	ccagtgggag	gtcgcccggc	gccgggccc	cgtcggcggg					420
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cccgcgcggg	ccttcgctcc	gatgccgggc	gtggacggag	gagtactggc	catccggcgg					540
cggtcgcgcg	cgctcgtggg	ccaggtgaag	acgtaccagg	acttcgtacg	ccaggtgttc					600
accggcaagg	ggaacgggct	gaaggagatc	ctgcggcgga	ccgggaggat	ctcgacgcgg					660
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gacggtacgg	cgggcgggtg	cgcggccgga	tcgcacgggg	cggctcgggt	cggggccggg					840
caccggggcg	gccgggtgtc	cgcgagccgg	cggggcggtc	cgcaggcgcg	gcgcggccgg					900
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agcgcgtag										969

<210> 29
 <211> 322
 <212> PRT
 <213> Streptomyces venezuelae

<400> 29															
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		20					25					30			
Thr	Lys	Gly	Pro	Ile	Leu	Glu	Ile	Gly	Pro	Gly	Asp	Gly	Ala	Leu	Thr
	35					40					45				
Leu	Pro	Leu	Ser	Arg	His	Gly	Arg	Pro	Ile	Thr	Ala	Val	Glu	Leu	Asp
	50				55						60				
Gly	Arg	Arg	Ala	Gln	Arg	Leu	Gly	Ala	Arg	Thr	Pro	Gly	His	Val	Thr
65				70					75					80	
Val	Val	His	His	Asp	Phe	Leu	Gln	Tyr	Pro	Leu	Pro	Arg	Asn	Pro	His
			85					90					95		
Val	Val	Val	Gly	Asn	Val	Pro	Phe	His	Leu	Thr	Thr	Ala	Ile	Met	Arg
		100					105					110			
Arg	Leu	Leu	Asp	Ala	Gln	His	Trp	His	Thr	Ala	Val	Leu	Leu	Val	Gln
	115					120					125				
Trp	Glu	Val	Ala	Arg	Arg	Arg	Ala	Gly	Val	Gly	Gly	Ser	Thr	Leu	Leu
	130				135						140				
Thr	Ala	Gly	Trp	Ala	Pro	Trp	Tyr	Glu	Phe	Asp	Leu	His	Ser	Arg	Val
145				150					155						160

Pro Ala Arg Ala Phe Arg Pro Met Pro Gly Val Asp Gly Gly Val Leu
 165 170 175
 Ala Ile Arg Arg Arg Ser Ala Pro Leu Val Gly Gln Val Lys Thr Tyr
 180 185 190
 Gln Asp Phe Val Arg Gln Val Phe Thr Gly Lys Gly Asn Gly Leu Lys
 195 200 205
 Glu Ile Leu Arg Arg Thr Gly Arg Ile Ser Gln Arg Asp Leu Ala Thr
 210 215 220
 Trp Leu Arg Arg Asn Glu Ile Ser Pro His Ala Leu Pro Lys Asp Leu
 225 230 235 240
 Lys Pro Gly Gln Trp Ala Ser Leu Trp Glu Leu Thr Gly Gly Thr Ala
 245 250 255
 Asp Gly Ser Phe Asp Gly Thr Ala Gly Gly Gly Ala Ala Gly Ser His
 260 265 270
 Gly Ala Ala Arg Val Gly Ala Gly His Pro Gly Gly Arg Val Ser Ala
 275 280 285
 Ser Arg Arg Gly Val Pro Gln Ala Arg Arg Gly Arg Gly His Ala Val
 290 295 300
 Arg Ser Ser Thr Gly Thr Glu Pro Arg Trp Gly Arg Gly Arg Ala Glu
 305 310 315 320
 Ser Ala

<210> 30
 <211> 13842
 <212> DNA
 <213> *Streptomyces venezuelae*

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 catgcggagc actccttctc tcgtgctcct accggtgatg tgcgcgccga attgattcgt 180
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cccgtcgact	acgctgcccc	cagccggcag	gtcgagatca	tcgagagcga	gctcgccgag	2520
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          130          135          140
Asn Ser Arg Trp Gly Gly Phe Ile Glu Asp Val Asp Arg Phe Asp Ala
145          150          155          160
Ala Phe Phe Gly Ile Ser Pro Arg Glu Ala Ala Glu Met Asp Pro Gln
          165          170          175
Gln Arg Leu Ala Leu Glu Leu Gly Trp Glu Ala Leu Glu Arg Ala Gly
          180          185          190
Ile Asp Pro Ser Ser Leu Thr Gly Thr Arg Thr Gly Val Phe Ala Gly
          195          200          205
Ala Ile Trp Asp Asp Tyr Ala Thr Leu Lys His Arg Gln Gly Gly Ala
          210          215          220
Ala Ile Thr Pro His Thr Val Thr Gly Leu His Arg Gly Ile Ile Ala
225          230          235          240
Asn Arg Leu Ser Tyr Thr Leu Gly Leu Arg Gly Pro Ser Met Val Val
          245          250          255
Asp Ser Gly Gln Ser Ser Ser Leu Val Ala Val His Leu Ala Cys Glu
          260          265          270
Ser Leu Arg Arg Gly Glu Ser Glu Leu Ala Leu Ala Gly Gly Val Ser
          275          280          285
Leu Asn Leu Val Pro Asp Ser Ile Ile Gly Ala Ser Lys Phe Gly Gly
          290          295          300
Leu Ser Pro Asp Gly Arg Ala Tyr Thr Phe Asp Ala Arg Ala Asn Gly
305          310          315          320
Tyr Val Arg Gly Glu Gly Gly Gly Phe Val Val Leu Lys Arg Leu Ser
          325          330          335

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Arg	Ala	Val	Ala	Asp	Gly	Asp	Pro	Val	Leu	Ala	Val	Ile	Arg	Gly	Ser	340	345	350
Ala	Val	Asn	Asn	Gly	Gly	Ala	Ala	Gln	Gly	Met	Thr	Thr	Pro	Asp	Ala	355	360	365
Gln	Ala	Gln	Glu	Ala	Val	Leu	Arg	Glu	Ala	His	Glu	Arg	Ala	Gly	Thr	370	375	380
Ala	Pro	Ala	Asp	Val	Arg	Tyr	Val	Glu	Leu	His	Gly	Thr	Gly	Thr	Pro	385	390	400
Val	Gly	Asp	Pro	Ile	Glu	Ala	Ala	Ala	Leu	Gly	Ala	Ala	Leu	Gly	Thr	405	410	415
Gly	Arg	Pro	Ala	Gly	Gln	Pro	Leu	Leu	Val	Gly	Ser	Val	Lys	Thr	Asn	420	425	430
Ile	Gly	His	Leu	Glu	Gly	Ala	Ala	Gly	Ile	Ala	Gly	Leu	Ile	Lys	Ala	435	440	445
Val	Leu	Ala	Val	Arg	Gly	Arg	Ala	Leu	Pro	Ala	Ser	Leu	Asn	Tyr	Glu	450	455	460
Thr	Pro	Asn	Pro	Ala	Ile	Pro	Phe	Glu	Glu	Leu	Asn	Leu	Arg	Val	Asn	465	470	475
Thr	Glu	Tyr	Leu	Pro	Trp	Glu	Pro	Glu	His	Asp	Gly	Gln	Arg	Met	Val	485	490	495
Val	Gly	Val	Ser	Ser	Phe	Gly	Met	Gly	Gly	Thr	Asn	Ala	His	Val	Val	500	505	510
Leu	Glu	Glu	Ala	Pro	Gly	Gly	Cys	Arg	Gly	Ala	Ser	Val	Val	Glu	Ser	515	520	525
Thr	Val	Gly	Gly	Ser	Ala	Val	Gly	Gly	Gly	Val	Val	Pro	Trp	Val	Val	530	535	540
Ser	Ala	Lys	Ser	Ala	Ala	Ala	Leu	Asp	Ala	Gln	Ile	Glu	Arg	Leu	Ala	545	550	555
Ala	Phe	Ala	Ser	Arg	Asp	Arg	Thr	Asp	Gly	Val	Asp	Ala	Gly	Ala	Val	565	570	575
Asp	Ala	Gly	Ala	Val	Asp	Ala	Gly	Ala	Val	Ala	Arg	Val	Leu	Ala	Gly	580	585	590
Gly	Arg	Ala	Gln	Phe	Glu	His	Arg	Ala	Val	Val	Val	Gly	Ser	Gly	Pro	595	600	605
Asp	Asp	Leu	Ala	Ala	Ala	Leu	Ala	Ala	Pro	Glu	Gly	Leu	Val	Arg	Gly	610	615	620
Val	Ala	Ser	Gly	Val	Gly	Arg	Val	Ala	Phe	Val	Phe	Pro	Gly	Gln	Gly	625	630	635
Thr	Gln	Trp	Ala	Gly	Met	Gly	Ala	Glu	Leu	Leu	Asp	Ser	Ser	Ala	Val	645	650	655
Phe	Ala	Ala	Ala	Met	Ala	Glu	Cys	Glu	Ala	Ala	Leu	Ser	Pro	Tyr	Val	660	665	670
Asp	Trp	Ser	Leu	Glu	Ala	Val	Val	Arg	Gln	Ala	Pro	Gly	Ala	Pro	Thr	675	680	685
Leu	Glu	Arg	Val	Asp	Val	Val	Gln	Pro	Val	Thr	Phe	Ala	Val	Met	Val	690	695	700
Ser	Leu	Ala	Arg	Val	Trp	Gln	His	His	Gly	Val	Thr	Pro	Gln	Ala	Val	705	710	715
Val	Gly	His	Ser	Gln	Gly	Glu	Ile	Ala	Ala	Ala	Tyr	Val	Ala	Gly	Ala	725	730	735
Leu	Ser	Leu	Asp	Ala	Ala	Arg	Val	Val	Thr	Leu	Arg	Ser	Lys	Ser		740	745	750
Ile	Ala	Ala	His	Leu	Ala	Gly	Lys	Gly	Gly	Met	Leu	Ser	Leu	Ala	Leu	755	760	765
Ser	Glu	Asp	Ala	Val	Leu	Glu	Arg	Leu	Ala	Gly	Phe	Asp	Gly	Leu	Ser	770	775	780
Val	Ala	Ala	Val	Asn	Gly	Pro	Thr	Ala	Thr	Val	Val	Ser	Gly	Asp	Pro	785	790	795
Val	Gln	Ile	Glu	Glu	Leu	Ala	Arg	Ala	Cys	Glu	Ala	Asp	Gly	Val	Arg	805	810	815
Ala	Arg	Val	Ile	Pro	Val	Asp	Tyr	Ala	Ser	His	Ser	Arg	Gln	Val	Glu	820	825	830

Ile	Ile	Glu	Ser	Glu	Leu	Ala	Glu	Val	Leu	Ala	Gly	Leu	Ser	Pro	Gln	835	840	845
Ala	Pro	Arg	Val	Pro	Phe	Phe	Ser	Thr	Leu	Glu	Gly	Ala	Trp	Ile	Thr	850	855	860
Glu	Pro	Val	Leu	Asp	Gly	Gly	Tyr	Trp	Tyr	Arg	Asn	Leu	Arg	His	Arg	865	870	875
Val	Gly	Phe	Ala	Pro	Ala	Val	Glu	Thr	Leu	Ala	Thr	Asp	Glu	Gly	Phe	885	890	895
Thr	His	Phe	Val	Glu	Val	Ser	Ala	His	Pro	Val	Leu	Thr	Met	Ala	Leu	900	905	910
Pro	Gly	Thr	Val	Thr	Gly	Leu	Ala	Thr	Leu	Arg	Arg	Asp	Asn	Gly	Gly	915	920	925
Gln	Asp	Arg	Leu	Val	Ala	Ser	Leu	Ala	Glu	Ala	Trp	Ala	Asn	Gly	Leu	930	935	940
Ala	Val	Asp	Trp	Ser	Pro	Leu	Leu	Pro	Ser	Ala	Thr	Gly	His	His	Ser	945	950	955
Asp	Leu	Pro	Thr	Tyr	Ala	Phe	Gln	Thr	Glu	Arg	His	Trp	Leu	Gly	Glu	965	970	975
Ile	Glu	Ala	Leu	Ala	Pro	Ala	Gly	Glu	Pro	Ala	Val	Gln	Pro	Ala	Val	980	985	990
Leu	Arg	Thr	Glu	Ala	Ala	Glu	Pro	Ala	Glu	Leu	Asp	Arg	Asp	Glu	Gln	995	1000	1005
Leu	Arg	Val	Ile	Leu	Asp	Lys	Val	Arg	Ala	Gln	Thr	Ala	Gln	Val	Leu	1010	1015	1020
Gly	Tyr	Ala	Thr	Gly	Gly	Gln	Ile	Glu	Val	Asp	Arg	Thr	Phe	Arg	Glu	1025	1030	1035
Ala	Gly	Cys	Thr	Ser	Leu	Thr	Gly	Val	Asp	Leu	Arg	Asn	Arg	Ile	Asn	1045	1050	1055
Ala	Ala	Phe	Gly	Val	Arg	Met	Ala	Pro	Ser	Met	Ile	Phe	Asp	Phe	Pro	1060	1065	1070
Thr	Pro	Glu	Ala	Leu	Ala	Glu	Gln	Leu	Leu	Leu	Val	Val	His	Gly	Glu	1075	1080	1085
Ala	Ala	Ala	Asn	Pro	Ala	Gly	Ala	Glu	Pro	Ala	Pro	Val	Ala	Ala	Ala	1090	1095	1100
Gly	Ala	Val	Asp	Glu	Pro	Val	Ala	Ile	Val	Gly	Met	Ala	Cys	Arg	Leu	1105	1110	1115
Pro	Gly	Gly	Val	Ala	Ser	Pro	Glu	Asp	Leu	Trp	Arg	Leu	Val	Ala	Gly	1125	1130	1135
Gly	Gly	Asp	Ala	Ile	Ser	Glu	Phe	Pro	Gln	Asp	Arg	Gly	Trp	Asp	Val	1140	1145	1150
Glu	Gly	Leu	Tyr	His	Pro	Asp	Pro	Glu	His	Pro	Gly	Thr	Ser	Tyr	Val	1155	1160	1165
Arg	Gln	Gly	Gly	Phe	Ile	Glu	Asn	Val	Ala	Gly	Phe	Asp	Ala	Ala	Phe	1170	1175	1180
Phe	Gly	Ile	Ser	Pro	Arg	Glu	Ala	Leu	Ala	Met	Asp	Pro	Gln	Gln	Arg	1185	1190	1195
Leu	Leu	Leu	Glu	Thr	Ser	Trp	Glu	Ala	Val	Glu	Asp	Ala	Gly	Ile	Asp	1205	1210	1215
Pro	Thr	Ser	Leu	Arg	Gly	Arg	Gln	Val	Gly	Val	Phe	Thr	Gly	Ala	Met	1220	1225	1230
Thr	His	Glu	Tyr	Gly	Pro	Ser	Leu	Arg	Asp	Gly	Gly	Glu	Gly	Leu	Asp	1235	1240	1245
Gly	Tyr	Leu	Leu	Thr	Gly	Asn	Thr	Ala	Ser	Val	Met	Ser	Gly	Arg	Val	1250	1255	1260
Ser	Tyr	Thr	Leu	Gly	Leu	Glu	Gly	Pro	Ala	Leu	Thr	Val	Asp	Thr	Ala	1265	1270	1275
Cys	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Leu	Ala	Val	Gln	Ala	Leu	Arg	1285	1290	1295
Lys	Gly	Glu	Val	Asp	Met	Ala	Leu	Ala	Gly	Gly	Val	Ala	Val	Met	Pro	1300	1305	1310
Thr	Pro	Gly	Met	Phe	Val	Glu	Phe	Ser	Arg	Gln	Arg	Gly	Leu	Ala	Gly	1315	1320	1325

Asp Gly Arg Ser Lys Ala Phe Ala Ala Ser Ala Asp Gly Thr Ser Trp
 1330 1335 1340
 Ser Glu Gly Val Gly Val Leu Leu Val Glu Arg Leu Ser Asp Ala Arg
 1345 1350 1355 1360
 Arg Asn Gly His Gln Val Leu Ala Val Val Arg Gly Ser Ala Leu Asn
 1365 1370 1375
 Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ser Gln
 1380 1385 1390
 Gln Arg Val Ile Arg Arg Ala Leu Ala Asp Ala Arg Leu Thr Thr Ser
 1395 1400 1405
 Asp Val Asp Val Val Glu Ala His Gly Thr Gly Thr Arg Leu Gly Asp
 1410 1415 1420
 Pro Ile Glu Ala Gln Ala Leu Ile Ala Thr Tyr Gly Gln Gly Arg Asp
 1425 1430 1435 1440
 Asp Glu Gln Pro Leu Arg Leu Gly Ser Leu Lys Ser Asn Ile Gly His
 1445 1450 1455
 Thr Gln Ala Ala Ala Gly Val Ser Gly Val Ile Lys Met Val Gln Ala
 1460 1465 1470
 Met Arg His Gly Leu Leu Pro Lys Thr Leu His Val Asp Glu Pro Ser
 1475 1480 1485
 Asp Gln Ile Asp Trp Ser Ala Gly Ala Val Glu Leu Leu Thr Glu Ala
 1490 1495 1500
 Val Asp Trp Pro Glu Lys Gln Asp Gly Gly Leu Arg Arg Ala Ala Val
 1505 1510 1515 1520
 Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His Val Val Leu Glu Glu
 1525 1530 1535
 Ala Pro Val Val Val Glu Gly Ala Ser Val Val Glu Pro Ser Val Gly
 1540 1545 1550
 Gly Ser Ala Val Gly Gly Gly Val Thr Pro Trp Val Val Ser Ala Lys
 1555 1560 1565
 Ser Ala Ala Ala Leu Asp Ala Gln Ile Glu Arg Leu Ala Ala Phe Ala
 1570 1575 1580
 Ser Arg Asp Arg Thr Asp Asp Ala Asp Ala Gly Ala Val Asp Ala Gly
 1585 1590 1595 1600
 Ala Val Ala His Val Leu Ala Asp Gly Arg Ala Gln Phe Glu His Arg
 1605 1610 1615
 Ala Val Ala Leu Gly Ala Gly Ala Asp Asp Leu Val Gln Ala Leu Ala
 1620 1625 1630
 Asp Pro Asp Gly Leu Ile Arg Gly Thr Ala Ser Gly Val Gly Arg Val
 1635 1640 1645
 Ala Phe Val Phe Pro Gly Gln Gly Thr Gln Trp Ala Gly Met Gly Ala
 1650 1655 1660
 Glu Leu Leu Asp Ser Ser Ala Val Phe Ala Ala Met Ala Glu Cys
 1665 1670 1675 1680
 Glu Ala Ala Leu Ser Pro Tyr Val Asp Trp Ser Leu Glu Ala Val Val
 1685 1690 1695
 Arg Gln Ala Pro Gly Ala Pro Thr Leu Glu Arg Val Asp Val Val Gln
 1700 1705 1710
 Pro Val Thr Phe Ala Val Met Val Ser Leu Ala Arg Val Trp Gln His
 1715 1720 1725
 His Gly Val Thr Pro Gln Ala Val Val Gly His Ser Gln Gly Glu Ile
 1730 1735 1740
 Ala Ala Ala Tyr Val Ala Gly Ala Leu Pro Leu Asp Asp Ala Ala Arg
 1745 1750 1755 1760
 Val Val Thr Leu Arg Ser Lys Ser Ile Ala Ala His Leu Ala Gly Lys
 1765 1770 1775
 Gly Gly Met Leu Ser Leu Ala Leu Asn Glu Asp Ala Val Leu Glu Arg
 1780 1785 1790
 Leu Ser Asp Phe Asp Gly Leu Ser Val Ala Ala Val Asn Gly Pro Thr
 1795 1800 1805
 Ala Thr Val Val Ser Gly Asp Pro Val Gln Ile Glu Glu Leu Ala Gln
 1810 1815 1820

Ala	Cys	Lys	Ala	Asp	Gly	Phe	Arg	Ala	Arg	Ile	Ile	Pro	Val	Asp	Tyr	
1825					1830					1835					1840	
Ala	Ser	His	Ser	Arg	Gln	Val	Glu	Ile	Ile	Glu	Ser	Glu	Leu	Ala	Gln	
				1845						1850					1855	
Val	Leu	Ala	Gly	Leu	Ser	Pro	Gln	Ala	Pro	Arg	Val	Pro	Phe	Phe	Ser	
			1860						1865					1870		
Thr	Leu	Glu	Gly	Thr	Trp	Ile	Thr	Glu	Pro	Val	Leu	Asp	Gly	Thr	Tyr	
		1875					1880						1885			
Trp	Tyr	Arg	Asn	Leu	Arg	His	Arg	Val	Gly	Phe	Ala	Pro	Ala	Ile	Glu	
1890						1895						1900				
Thr	Leu	Ala	Val	Asp	Glu	Gly	Phe	Thr	His	Phe	Val	Glu	Val	Ser	Ala	
1905					1910					1915					1920	
His	Pro	Val	Leu	Thr	Met	Thr	Leu	Pro	Glu	Thr	Val	Thr	Gly	Leu	Gly	
				1925						1930					1935	
Thr	Leu	Arg	Arg	Glu	Gln	Gly	Gly	Gln	Glu	Arg	Leu	Val	Thr	Ser	Leu	
			1940						1945						1950	
Ala	Glu	Ala	Trp	Val	Asn	Gly	Leu	Pro	Val	Ala	Trp	Thr	Ser	Leu	Leu	
		1955					1960						1965			
Pro	Ala	Thr	Ala	Ser	Arg	Pro	Gly	Leu	Pro	Thr	Tyr	Ala	Phe	Gln	Ala	
		1970					1975					1980				
Glu	Arg	Tyr	Trp	Leu	Glu	Asn	Thr	Pro	Ala	Ala	Leu	Ala	Thr	Gly	Asp	
1985					1990					1995					2000	
Asp	Trp	Arg	Tyr	Arg	Ile	Asp	Trp	Lys	Arg	Leu	Pro	Ala	Ala	Glu	Gly	
				2005					2010						2015	
Ser	Glu	Arg	Thr	Gly	Leu	Ser	Gly	Arg	Trp	Leu	Ala	Val	Thr	Pro	Glu	
			2020					2025						2030		
Asp	His	Ser	Ala	Gln	Ala	Ala	Ala	Val	Leu	Thr	Ala	Leu	Val	Asp	Ala	
		2035						2040						2045		
Gly	Ala	Lys	Val	Glu	Val	Leu	Thr	Ala	Gly	Ala	Asp	Asp	Asp	Arg	Glu	
	2050					2055					2060					
Ala	Leu	Ala	Ala	Arg	Leu	Thr	Ala	Leu	Thr	Thr	Gly	Asp	Gly	Phe	Thr	
2065					2070					2075					2080	
Gly	Val	Val	Ser	Leu	Leu	Asp	Gly	Leu	Val	Pro	Gln	Val	Ala	Trp	Val	
			2085						2090						2095	
Gln	Ala	Leu	Gly	Asp	Ala	Gly	Ile	Lys	Ala	Pro	Leu	Trp	Ser	Val	Thr	
			2100					2105						2110		
Gln	Gly	Ala	Val	Ser	Val	Gly	Arg	Leu	Asp	Thr	Pro	Ala	Asp	Pro	Asp	
		2115					2120						2125			
Arg	Ala	Met	Leu	Trp	Gly	Leu	Gly	Arg	Val	Val	Ala	Leu	Glu	His	Pro	
	2130					2135						2140				
Glu	Arg	Trp	Ala	Gly	Leu	Val	Asp	Leu	Pro	Ala	Gln	Pro	Asp	Ala	Ala	
2145					2150					2155					2160	
Ala	Leu	Ala	His	Leu	Val	Thr	Ala	Leu	Ser	Gly	Ala	Thr	Gly	Glu	Asp	
			2165						2170					2175		
Gln	Ile	Ala	Ile	Arg	Thr	Thr	Gly	Leu	His	Ala	Arg	Arg	Leu	Ala	Arg	
		2180						2185						2190		
Ala	Pro	Leu	His	Gly	Arg	Arg	Pro	Thr	Arg	Asp	Trp	Gln	Pro	His	Gly	
	2195						2200						2205			
Thr	Val	Leu	Ile	Thr	Gly	Gly	Thr	Gly	Ala	Leu	Gly	Ser	His	Ala	Ala	
	2210					2215					2220					
Arg	Trp	Met	Ala	His	His	Gly	Ala	Glu	His	Leu	Leu	Leu	Val	Ser	Arg	
2225					2230					2235					2240	
Ser	Gly	Glu	Gln	Ala	Pro	Gly	Ala	Thr	Gln	Leu	Thr	Ala	Glu	Leu	Thr	
			2245						2250					2255		
Ala	Ser	Gly	Ala	Arg	Val	Thr	Ile	Ala	Ala	Cys	Asp	Val	Ala	Asp	Pro	
		2260						2265						2270		
His	Ala	Met	Arg	Thr	Leu	Leu	Asp	Ala	Ile	Pro	Ala	Glu	Thr	Pro	Leu	
	2275						2280							2285		
Thr	Ala	Val	Val	His	Thr	Ala	Gly	Ala	Leu	Asp	Asp	Gly	Ile	Val	Asp	
	2290					2295					2300					
Thr	Leu	Thr	Ala	Glu	Gln	Val	Arg	Arg	Ala	His	Arg	Ala	Lys	Ala	Val	
2305					2310						2315				2320	

Gly Ala Ser Val Leu Asp Glu Leu Thr Arg Asp Leu Asp Leu Asp Ala
 2325 2330 2335
 Phe Val Leu Phe Ser Ser Val Ser Ser Thr Leu Gly Ile Pro Gly Gln
 2340 2345 2350
 Gly Asn Tyr Ala Pro His Asn Ala Tyr Leu Asp Ala Leu Ala Ala Arg
 2355 2360 2365
 Arg Arg Ala Thr Gly Arg Ser Ala Val Ser Val Ala Trp Gly Pro Trp
 2370 2375 2380
 Asp Gly Gly Gly Met Ala Ala Gly Asp Gly Val Ala Glu Arg Leu Arg
 2385 2390 2395 2400
 Asn His Gly Val Pro Gly Met Asp Pro Glu Leu Ala Leu Ala Ala Leu
 2405 2410 2415
 Glu Ser Ala Leu Gly Arg Asp Glu Thr Ala Ile Thr Val Ala Asp Ile
 2420 2425 2430
 Asp Trp Asp Arg Phe Tyr Leu Ala Tyr Ser Ser Gly Arg Pro Gln Pro
 2435 2440 2445
 Leu Val Glu Glu Leu Pro Glu Val Arg Arg Ile Ile Asp Ala Arg Asp
 2450 2455 2460
 Ser Ala Thr Ser Gly Gln Gly Gly Ser Ser Ala Gln Gly Ala Asn Pro
 2465 2470 2475 2480
 Leu Ala Glu Arg Leu Ala Ala Ala Ala Pro Gly Glu Arg Thr Glu Ile
 2485 2490 2495
 Leu Leu Gly Leu Val Arg Ala Gln Ala Ala Ala Val Leu Arg Met Arg
 2500 2505 2510
 Ser Pro Glu Asp Val Ala Ala Asp Arg Ala Phe Lys Asp Ile Gly Phe
 2515 2520 2525
 Asp Ser Leu Ala Gly Val Glu Leu Arg Asn Arg Leu Thr Arg Ala Thr
 2530 2535 2540
 Gly Leu Gln Leu Pro Ala Thr Leu Val Phe Asp His Pro Thr Pro Leu
 2545 2550 2555 2560
 Ala Leu Val Ser Leu Leu Arg Ser Glu Phe Leu Gly Asp Glu Glu Thr
 2565 2570 2575
 Ala Asp Ala Arg Arg Ser Ala Ala Leu Pro Ala Thr Val Gly Ala Gly
 2580 2585 2590
 Ala Gly Ala Gly Ala Gly Thr Asp Ala Asp Asp Asp Pro Ile Ala Ile
 2595 2600 2605
 Val Ala Met Ser Cys Arg Tyr Pro Gly Asp Ile Arg Ser Pro Glu Asp
 2610 2615 2620
 Leu Trp Arg Met Leu Ser Glu Gly Gly Glu Gly Ile Thr Pro Phe Pro
 2625 2630 2635 2640
 Thr Asp Arg Gly Trp Asp Leu Asp Gly Leu Tyr Asp Ala Asp Pro Asp
 2645 2650 2655
 Ala Leu Gly Arg Ala Tyr Val Arg Glu Gly Gly Phe Leu His Asp Ala
 2660 2665 2670
 Ala Glu Phe Asp Ala Glu Phe Phe Gly Val Ser Pro Arg Glu Ala Leu
 2675 2680 2685
 Ala Met Asp Pro Gln Gln Arg Met Leu Leu Thr Thr Ser Trp Glu Ala
 2690 2695 2700
 Phe Glu Arg Ala Gly Ile Glu Pro Ala Ser Leu Arg Gly Ser Ser Thr
 2705 2710 2715 2720
 Gly Val Phe Ile Gly Leu Ser Tyr Gln Asp Tyr Ala Ala Arg Val Pro
 2725 2730 2735
 Asn Ala Pro Arg Gly Val Glu Gly Tyr Leu Leu Thr Gly Ser Thr Pro
 2740 2745 2750
 Ser Val Ala Ser Gly Arg Ile Ala Tyr Thr Phe Gly Leu Glu Gly Pro
 2755 2760 2765
 Ala Thr Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Thr Ala Leu His
 2770 2775 2780
 Leu Ala Val Arg Ala Leu Arg Ser Gly Glu Cys Thr Met Ala Leu Ala
 2785 2790 2795 2800
 Gly Gly Val Ala Met Met Ala Thr Pro His Met Phe Val Glu Phe Ser
 2805 2810 2815

Arg	Gln	Arg	Ala	Leu	Ala	Pro	Asp	Gly	Arg	Ser	Lys	Ala	Phe	Ser	Ala		
			2820					2825					2830				
Asp	Ala	Asp	Gly	Phe	Gly	Ala	Ala	Glu	Gly	Val	Gly	Leu	Leu	Leu	Val		
		2835					2840					2845					
Glu	Arg	Leu	Ser	Asp	Ala	Arg	Arg	Asn	Gly	His	Pro	Val	Leu	Ala	Val		
	2850					2855					2860						
Val	Arg	Gly	Thr	Ala	Val	Asn	Gln	Asp	Gly	Ala	Ser	Asn	Gly	Leu	Thr		
2865					2870					2875					2880		
Ala	Pro	Asn	Gly	Pro	Ser	Gln	Gln	Arg	Val	Ile	Arg	Gln	Ala	Leu	Ala		
			2885						2890					2895			
Asp	Ala	Arg	Leu	Ala	Pro	Gly	Asp	Ile	Asp	Ala	Val	Glu	Thr	His	Gly		
			2900					2905					2910				
Thr	Gly	Thr	Ser	Leu	Gly	Asp	Pro	Ile	Glu	Ala	Gln	Gly	Leu	Gln	Ala		
		2915				2920						2925					
Thr	Tyr	Gly	Lys	Glu	Arg	Pro	Ala	Glu	Arg	Pro	Leu	Ala	Ile	Gly	Ser		
	2930					2935					2940						
Val	Lys	Ser	Asn	Ile	Gly	His	Thr	Gln	Ala	Ala	Ala	Gly	Ala	Ala	Gly		
2945					2950					2955					2960		
Ile	Ile	Lys	Met	Val	Leu	Ala	Met	Arg	His	Gly	Thr	Leu	Pro	Lys	Thr		
			2965					2970						2975			
Leu	His	Ala	Asp	Glu	Pro	Ser	Pro	His	Val	Asp	Trp	Ala	Asn	Ser	Gly		
			2980					2985					2990				
Leu	Ala	Leu	Val	Thr	Glu	Pro	Ile	Asp	Trp	Pro	Ala	Gly	Thr	Gly	Pro		
		2995					3000					3005					
Arg	Arg	Ala	Ala	Val	Ser	Ser	Phe	Gly	Ile	Ser	Gly	Thr	Asn	Ala	His		
	3010					3015					3020						
Val	Val	Leu	Glu	Gln	Ala	Pro	Asp	Ala	Ala	Gly	Glu	Val	Leu	Gly	Ala		
3025					3030					3035					3040		
Asp	Glu	Val	Pro	Glu	Val	Ser	Glu	Thr	Val	Ala	Met	Ala	Gly	Thr	Ala		
			3045					3050					3055				
Gly	Thr	Ser	Glu	Val	Ala	Glu	Gly	Ser	Glu	Ala	Ser	Glu	Ala	Pro	Ala		
		3060						3065					3070				
Ala	Pro	Gly	Ser	Arg	Glu	Ala	Ser	Leu	Pro	Gly	His	Leu	Pro	Trp	Val		
		3075					3080					3085					
Leu	Ser	Ala	Lys	Asp	Glu	Gln	Ser	Leu	Arg	Gly	Gln	Ala	Ala	Ala	Leu		
	3090					3095					3100						
His	Ala	Trp	Leu	Ser	Glu	Pro	Ala	Ala	Asp	Leu	Ser	Asp	Ala	Asp	Gly		
3105					3110					3115					3120		
Pro	Ala	Arg	Leu	Arg	Asp	Val	Gly	Tyr	Thr	Leu	Ala	Thr	Ser	Arg	Thr		
			3125					3130						3135			
Ala	Phe	Ala	His	Arg	Ala	Ala	Val	Thr	Ala	Ala	Asp	Arg	Asp	Gly	Phe		
		3140						3145					3150				
Leu	Asp	Gly	Leu	Ala	Thr	Leu	Ala	Gln	Gly	Gly	Thr	Ser	Ala	His	Val		
		3155					3160					3165					
His	Leu	Asp	Thr	Ala	Arg	Asp	Gly	Thr	Thr	Ala	Phe	Leu	Phe	Thr	Gly		
	3170					3175				3180							
Gln	Gly	Ser	Gln	Arg	Pro	Gly	Ala	Gly	Arg	Glu	Leu	Tyr	Asp	Arg	His		
3185					3190					3195					3200		
Pro	Val	Phe	Ala	Arg	Ala	Leu	Asp	Glu	Ile	Cys	Ala	His	Leu	Asp	Gly		
			3205					3210						3215			
His	Leu	Glu	Leu	Pro	Leu	Leu	Asp	Val	Met	Phe	Ala	Ala	Glu	Gly	Ser		
		3220						3225					3230				
Ala	Glu	Ala	Ala	Leu	Leu	Asp	Glu	Thr	Arg	Tyr	Thr	Gln	Cys	Ala	Leu		
		3235					3240					3245					
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 35 40 45

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Glu	Asp	Ala	Ile	Ser	Glu	Phe	Pro	Gln	Asp	Arg	Gly	Trp	Asp	Val	Glu
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Gly	Leu	Tyr	Asp	Pro	Asn	Pro	Glu	Ala	Thr	Gly	Lys	Ser	Tyr	Ala	Arg
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Glu	Ala	Gly	Phe	Leu	Tyr	Glu	Ala	Gly	Glu	Phe	Asp	Ala	Asp	Phe	Phe
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Leu	Leu	Glu	Ala	Ser	Trp	Glu	Ala	Phe	Glu	His	Ala	Gly	Ile	Pro	Ala
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Ala	Thr	Ala	Arg	Gly	Thr	Ser	Val	Gly	Val	Phe	Thr	Gly	Val	Met	Tyr
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His	Asp	Tyr	Ala	Thr	Arg	Leu	Thr	Asp	Val	Pro	Glu	Gly	Ile	Glu	Gly
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Tyr	Thr	Leu	Gly	Leu	Glu	Gly	Pro	Ala	Val	Thr	Val	Asp	Thr	Ala	Cys
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Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Leu	Ala	Val	Gln	Ala	Leu	Arg	Lys
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Pro	Ser	Thr	Phe	Val	Glu	Phe	Ser	Arg	Gln	Arg	Gly	Leu	Ala	Pro	Asp
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Glu	Gly	Val	Gly	Val	Leu	Leu	Val	Glu	Arg	Leu	Ser	Asp	Ala	Arg	Arg
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Lys	Gly	His	Arg	Ile	Leu	Ala	Val	Val	Arg	Gly	Thr	Ala	Val	Asn	Gln
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Asp	Gly	Ala	Ser	Ser	Gly	Leu	Thr	Ala	Pro	Asn	Gly	Pro	Ser	Gln	Gln
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Arg	Val	Ile	Arg	Arg	Ala	Leu	Ala	Asp	Ala	Arg	Leu	Thr	Thr	Ser	Asp
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Ile	Glu	Ala	Gln	Ala	Val	Ile	Ala	Thr	Tyr	Gly	Gln	Gly	Arg	Asp	Gly
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Arg	His	Gly	Val	Leu	Pro	Lys	Thr	Leu	His	Val	Glu	Lys	Pro	Thr	Asp
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Gln	Val	Asp	Trp	Ser	Ala	Gly	Ala	Val	Glu	Leu	Leu	Thr	Glu	Ala	Met
			420					425					430		
Asp	Trp	Pro	Asp	Lys	Gly	Asp	Gly	Gly	Leu	Arg	Arg	Ala	Ala	Val	Ser
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Ser	Phe	Gly	Val	Ser	Gly	Thr	Asn	Ala	His	Val	Val	Leu	Glu	Glu	Ala
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Pro	Ala	Ala	Glu	Glu	Thr	Pro	Ala	Ser	Glu	Ala	Thr	Pro	Ala	Val	Glu
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Pro	Ser	Val	Gly	Ala	Gly	Leu	Val	Pro	Trp	Leu	Val	Ser	Ala	Lys	Thr
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Pro	Ala	Ala	Leu	Asp	Ala	Gln	Ile	Gly	Arg	Leu	Ala	Ala	Phe	Ala	Ser
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Gln	Gly	Arg	Thr	Asp	Ala	Ala	Asp	Pro	Gly	Ala	Val	Ala	Arg	Val	Leu
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Ala	Gly	Gly	Arg	Ala	Glu	Phe	Glu	His	Arg	Ala	Val	Val	Leu	Gly	Thr
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Gly	Gln	Asp	Asp	Phe	Ala	Gln	Ala	Leu	Thr	Ala	Pro	Glu	Gly	Leu	Ile
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Arg	Gly	Thr	Pro	Ser	Asp	Val	Gly	Arg	Val	Ala	Phe	Val	Phe	Pro	Gly
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Gln	Gly	Thr	Gln	Trp	Ala	Gly	Met	Gly	Ala	Glu	Leu	Leu	Asp	Val	Ser
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Lys	Glu	Phe	Ala	Ala	Ala	Met	Ala	Glu	Cys	Glu	Ser	Ala	Leu	Ser	Arg
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Tyr	Val	Asp	Trp	Ser	Leu	Glu	Ala	Val	Val	Arg	Gln	Ala	Pro	Gly	Ala
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Met	Val	Ser	Leu	Ala	Lys	Val	Trp	Gln	His	His	Gly	Val	Thr	Pro	Gln
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Ala	Val	Val	Gly	His	Ser	Gln	Gly	Glu	Ile	Ala	Ala	Ala	Tyr	Val	Ala
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Gly	Ala	Leu	Thr	Leu	Asp	Asp	Ala	Ala	Arg	Val	Val	Thr	Leu	Arg	Ser
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Ile	Thr	Glu	Pro	Val	Leu	Asp	Gly	Thr	Tyr	Trp	Tyr	Arg	Asn	Leu	Arg
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His	Arg	Val	Gly	Phe	Ala	Pro	Ala	Val	Glu	Thr	Leu	Ala	Thr	Asp	Glu
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Gly	Leu	Thr	Ile	Asp	Trp	Ala	Pro	Val	Leu	Pro	Thr	Ala	Thr	Gly	His
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His	Pro	Glu	Leu	Pro	Thr	Tyr	Ala	Phe	Gln	Arg	Arg	His	Tyr	Trp	Leu
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Arg	Ile	Asp	Trp	Lys	Arg	Leu	Ala	Val	Ala	Asp	Ala	Ser	Glu	Arg	Ala
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Glu	Ala	Ala	Pro	Val	Leu	Ala	Ala	Leu	Ser	Gly	Ala	Gly	Ala	Asp	Pro
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 Val Ser Val Gly Arg Ala Asp His Val Thr Ser Pro Ala Gln Ala Met
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 Val Trp Gly Met Gly Arg Val Ala Ala Leu Glu His Pro Glu Arg Trp
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 Gly Gly Leu Ile Asp Leu Pro Ser Asp Ala Asp Arg Ala Ala Leu Asp
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 Gly Ser Glu Gly Ala Glu Gly Thr Ser Gly Ala Ala Glu Asp Ser Gly
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 Leu Ala Gly Leu Val Ala Glu Leu Ala Asp Leu Gly Ala Thr Ala Thr
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 Ala Gly Val Ser Asp Ala His Pro Leu Ser Ala Val Leu His Leu Pro
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 Pro Thr Val Asp Ser Glu Pro Leu Ala Ala Thr Asp Ala Asp Ala Leu
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 Leu Leu Arg Glu Ala Ala Ala Ala Gly Gly Arg Pro Pro Val Leu Val
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 1395 1400 1405
 Asp Leu Pro Glu Ala Arg Arg Ala Leu Asp Glu Gln Gln Ser Thr Thr
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 Val Val Leu Asn His Pro Ser Pro Glu Ala Val Asp Thr Gly Arg Ala
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 Phe Arg Asp Leu Gly Phe Asp Ser Leu Thr Ala Val Glu Leu Arg Asn
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 1490 1495 1500
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Gly	Leu	Tyr	Asp	Pro	Asp	Pro	Asp	Ala	Ser	Gly	Arg	Thr	Tyr	Cys	Arg	1585	1590	1595
Ala	Gly	Gly	Phe	Leu	Asp	Glu	Ala	Gly	Glu	Phe	Asp	Ala	Asp	Phe	Phe	1605	1610	1615
Gly	Ile	Ser	Pro	Arg	Glu	Ala	Leu	Ala	Met	Asp	Pro	Gln	Gln	Arg	Leu	1620	1625	1630
Leu	Leu	Glu	Thr	Ser	Trp	Glu	Ala	Val	Glu	Asp	Ala	Gly	Ile	Asp	Pro	1635	1640	1645
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Gly	Arg	Ser	Lys	Ala	Phe	Ala	Ala	Ser	Ala	Asp	Gly	Phe	Gly	Pro	Ala	1765	1770	1775
Glu	Gly	Val	Gly	Met	Leu	Leu	Val	Glu	Arg	Leu	Ser	Asp	Ala	Arg	Arg	1780	1785	1790
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Arg	Val	Ile	Arg	Arg	Ala	Leu	Ala	Asp	Ala	Arg	Leu	Thr	Thr	Ala	Asp	1825	1830	1835
Val	Asp	Val	Val	Glu	Ala	His	Gly	Thr	Gly	Thr	Arg	Leu	Gly	Asp	Pro	1845	1850	1855
Ile	Glu	Ala	Gln	Ala	Leu	Ile	Ala	Thr	Tyr	Gly	Gln	Gly	Arg	Asp	Thr	1860	1865	1870
Glu	Gln	Pro	Leu	Arg	Leu	Gly	Ser	Leu	Lys	Ser	Asn	Ile	Gly	His	Thr	1875	1880	1885
Gln	Ala	Ala	Ala	Gly	Val	Ser	Gly	Ile	Ile	Lys	Met	Val	Gln	Ala	Met	1890	1895	1900
Arg	His	Gly	Val	Leu	Pro	Lys	Thr	Leu	His	Val	Asp	Arg	Pro	Ser	Asp	1905	1910	1915
Gln	Ile	Asp	Trp	Ser	Ala	Gly	Thr	Val	Glu	Leu	Leu	Thr	Glu	Ala	Met	1925	1930	1935
Asp	Trp	Pro	Arg	Lys	Gln	Glu	Gly	Gly	Leu	Arg	Arg	Ala	Ala	Val	Ser	1940	1945	1950
Ser	Phe	Gly	Ile	Ser	Gly	Thr	Asn	Ala	His	Ile	Val	Leu	Glu	Glu	Ala	1955	1960	1965
Pro	Val	Asp	Glu	Asp	Ala	Pro	Ala	Asp	Glu	Pro	Ser	Val	Gly	Gly	Val	1970	1975	1980
Val	Pro	Trp	Leu	Val	Ser	Ala	Lys	Thr	Pro	Ala	Ala	Leu	Asp	Ala	Gln	1985	1990	1995
Ile	Gly	Arg	Leu	Ala	Ala	Phe	Ala	Ser	Gln	Gly	Arg	Thr	Asp	Ala	Ala	2005	2010	2015
Asp	Pro	Gly	Ala	Val	Ala	Arg	Val	Leu	Ala	Gly	Gly	Arg	Ala	Gln	Phe	2020	2025	2030

Glu His Arg Ala Val Ala Leu Gly Thr Gly Gln Asp Asp Leu Ala Ala
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 Ala Leu Ala Ala Pro Glu Gly Leu Val Arg Gly Val Ala Ser Gly Val
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 Gly Arg Val Ala Phe Val Phe Pro Gly Gln Gly Thr Gln Trp Ala Gly
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 Val Val Gln Pro Val Thr Phe Ala Val Met Val Ser Leu Ala Lys Val
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 Trp Gln His His Gly Val Thr Pro Gln Ala Val Val Gly His Ser Gln
 2145 2150 2155 2160
 Gly Glu Ile Ala Ala Tyr Val Ala Gly Ala Leu Ser Leu Asp Asp
 2165 2170 2175
 Ala Ala Arg Val Val Thr Leu Arg Ser Lys Ser Ile Gly Ala His Leu
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 Ala Gly Gln Gly Gly Met Leu Ser Leu Ala Leu Ser Glu Ala Ala Val
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 Val Glu Arg Leu Ala Gly Phe Asp Gly Leu Ser Val Ala Ala Val Asn
 2210 2215 2220
 Gly Pro Thr Ala Thr Val Val Ser Gly Asp Pro Thr Gln Ile Gln Glu
 2225 2230 2235 2240
 Leu Ala Gln Ala Cys Glu Ala Asp Gly Val Arg Ala Arg Ile Ile Pro
 2245 2250 2255
 Val Asp Tyr Ala Ser His Ser Ala His Val Glu Thr Ile Glu Ser Glu
 2260 2265 2270
 Leu Ala Asp Val Leu Ala Gly Leu Ser Pro Gln Thr Pro Gln Val Pro
 2275 2280 2285
 Phe Phe Ser Thr Leu Glu Gly Ala Trp Ile Thr Glu Pro Ala Leu Asp
 2290 2295 2300
 Gly Gly Tyr Trp Tyr Arg Asn Leu Arg His Arg Val Gly Phe Ala Pro
 2305 2310 2315 2320
 Ala Val Glu Thr Leu Ala Thr Asp Glu Gly Phe Thr His Phe Val Glu
 2325 2330 2335
 Val Ser Ala His Pro Val Leu Thr Met Ala Leu Pro Glu Thr Val Thr
 2340 2345 2350
 Gly Leu Gly Thr Leu Arg Arg Asp Asn Gly Gly Gln His Arg Leu Thr
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 Thr Ser Leu Ala Glu Ala Trp Ala Asn Gly Leu Thr Val Asp Trp Ala
 2370 2375 2380
 Ser Leu Leu Pro Thr Thr Thr Thr His Pro Asp Leu Pro Thr Tyr Ala
 2385 2390 2395 2400
 Phe Gln Thr Glu Arg Tyr Trp Pro Gln Pro Asp Leu Ser Ala Ala Gly
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 Asp Ile Thr Ser Ala Gly Leu Gly Ala Ala Glu His Pro Leu Leu Gly
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 Ala Ala Val Ala Leu Ala Asp Ser Asp Gly Cys Leu Leu Thr Gly Ser
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 Leu Ser Leu Arg Thr His Pro Trp Leu Ala Asp His Ala Val Ala Gly
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 Thr Val Leu Leu Pro Gly Thr Ala Phe Val Glu Leu Ala Phe Arg Ala
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 Gly Asp Gln Val Gly Cys Asp Leu Val Glu Glu Leu Thr Leu Asp Ala
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 Pro Leu Val Leu Pro Arg Arg Gly Ala Val Arg Val Gln Leu Ser Val
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 Gly Ala Ser Asp Glu Ser Gly Arg Arg Thr Phe Gly Leu Tyr Ala His
 2515 2520 2525

Pro	Glu	Asp	Ala	Pro	Gly	Glu	Ala	Glu	Trp	Thr	Arg	His	Ala	Thr	Gly	2530	2535	2540
Val	Leu	Ala	Ala	Arg	Ala	Asp	Arg	Thr	Ala	Pro	Val	Ala	Asp	Pro	Glu	2545	2550	2555
Ala	Trp	Pro	Pro	Pro	Gly	Ala	Glu	Pro	Val	Asp	Val	Asp	Gly	Leu	Tyr	2565	2570	2575
Glu	Arg	Phe	Ala	Ala	Asn	Gly	Tyr	Gly	Tyr	Gly	Pro	Leu	Phe	Gln	Gly	2580	2585	2590
Val	Arg	Gly	Val	Trp	Arg	Arg	Gly	Asp	Glu	Val	Phe	Ala	Asp	Val	Ala	2595	2600	2605
Leu	Pro	Ala	Glu	Val	Ala	Gly	Ala	Glu	Gly	Ala	Arg	Phe	Gly	Leu	His	2610	2615	2620
Pro	Ala	Leu	Leu	Asp	Ala	Ala	Val	Gln	Ala	Ala	Gly	Ala	Gly	Arg	Gly	2625	2630	2635
Val	Arg	Arg	Gly	His	Ala	Ala	Ala	Val	Arg	Leu	Glu	Arg	Asp	Leu	Leu	2645	2650	2655
Tyr	Ala	Val	Gly	Ala	Thr	Ala	Leu	Arg	Val	Arg	Leu	Ala	Pro	Ala	Gly	2660	2665	2670
Pro	Asp	Thr	Val	Ser	Val	Ser	Ala	Ala	Asp	Ser	Ser	Gly	Gln	Pro	Val	2675	2680	2685
Phe	Ala	Ala	Asp	Ser	Leu	Thr	Val	Leu	Pro	Val	Asp	Pro	Ala	Gln	Leu	2690	2695	2700
Ala	Ala	Phe	Ser	Asp	Pro	Thr	Leu	Asp	Ala	Leu	His	Leu	Leu	Glu	Trp	2705	2710	2715
Thr	Ala	Trp	Asp	Gly	Ala	Ala	Gln	Ala	Leu	Pro	Gly	Ala	Val	Val	Leu	2725	2730	2735
Gly	Gly	Asp	Ala	Asp	Gly	Leu	Ala	Ala	Leu	Arg	Ala	Gly	Gly	Thr		2740	2745	2750
Glu	Val	Leu	Ser	Phe	Pro	Asp	Leu	Thr	Asp	Leu	Val	Glu	Ala	Val	Asp	2755	2760	2765
Arg	Gly	Glu	Thr	Pro	Ala	Pro	Ala	Thr	Val	Leu	Val	Ala	Cys	Pro	Ala	2770	2775	2780
Ala	Gly	Pro	Asp	Gly	Pro	Glu	His	Val	Arg	Glu	Ala	Leu	His	Gly	Ser	2785	2790	2795
Leu	Ala	Leu	Met	Gln	Ala	Trp	Leu	Ala	Asp	Glu	Arg	Phe	Thr	Asp	Gly	2805	2810	2815
Arg	Leu	Val	Leu	Val	Thr	Arg	Asp	Ala	Val	Ala	Ala	Arg	Ser	Gly	Asp	2820	2825	2830
Gly	Leu	Arg	Ser	Thr	Gly	Gln	Ala	Ala	Val	Trp	Gly	Leu	Gly	Arg	Ser	2835	2840	2845
Ala	Gln	Thr	Glu	Ser	Pro	Gly	Arg	Phe	Val	Leu	Leu	Asp	Leu	Ala	Gly	2850	2855	2860
Glu	Ala	Arg	Thr	Ala	Gly	Asp	Ala	Thr	Ala	Gly	Asp	Gly	Leu	Thr	Thr	2865	2870	2875
Gly	Asp	Ala	Thr	Val	Gly	Gly	Thr	Ser	Gly	Asp	Ala	Ala	Leu	Gly	Ser	2885	2890	2895
Ala	Leu	Ala	Thr	Ala	Leu	Gly	Ser	Gly	Glu	Pro	Gln	Leu	Ala	Leu	Arg	2900	2905	2910
Asp	Gly	Ala	Leu	Leu	Val	Pro	Arg	Leu	Ala	Arg	Ala	Ala	Ala	Pro	Ala	2915	2920	2925
Ala	Ala	Asp	Gly	Leu	Ala	Ala	Ala	Asp	Gly	Leu	Ala	Ala	Leu	Pro	Leu	2930	2935	2940
Pro	Ala	Ala	Pro	Ala	Leu	Trp	Arg	Leu	Glu	Pro	Gly	Thr	Asp	Gly	Ser	2945	2950	2955
Leu	Glu	Ser	Leu	Thr	Ala	Ala	Pro	Gly	Asp	Ala	Glu	Thr	Leu	Ala	Pro	2965	2970	2975
Glu	Pro	Leu	Gly	Pro	Gly	Gln	Val	Arg	Ile	Ala	Ile	Arg	Ala	Thr	Gly	2980	2985	2990
Leu	Asn	Phe	Arg	Asp	Val	Leu	Ile	Ala	Leu	Gly	Met	Tyr	Pro	Asp	Pro	2995	3000	3005
Ala	Leu	Met	Gly	Thr	Glu	Gly	Ala	Gly	Val	Val	Thr	Ala	Thr	Gly	Pro	3010	3015	3020

Gly Val Thr His Leu Ala Pro Gly Asp Arg Val Met Gly Leu Leu Ser
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 Met Pro Glu Gly Trp Thr Phe Ala Gln Gly Ala Ser Val Pro Val Val
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 Phe Leu Thr Ala Val Tyr Ala Leu Arg Asp Leu Ala Asp Val Lys Pro
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 Gly Glu Arg Leu Leu Val His Ser Ala Ala Gly Gly Val Gly Met Ala
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 Ser His Gly Lys Trp Asp Ala Leu Arg Ala Leu Gly Leu Asp Asp Ala
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 His Ile Ala Ser Ser Arg Thr Leu Asp Phe Glu Ser Ala Phe Arg Ala
 3140 3145 3150
 Ala Ser Gly Gly Ala Gly Met Asp Val Val Leu Asn Ser Leu Ala Arg
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 Glu Phe Val Asp Ala Ser Leu Arg Leu Leu Gly Pro Gly Gly Arg Phe
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 Val Glu Met Gly Lys Thr Asp Val Arg Asp Ala Glu Arg Val Ala Ala
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 Pro Glu Arg Ile Gly Glu Met Leu Ala Glu Val Ile Ala Leu Phe Glu
 3220 3225 3230
 Asp Gly Val Leu Arg His Leu Pro Val Thr Thr Trp Asp Val Arg Arg
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 Ala Arg Asp Ala Phe Arg His Val Ser Gln Ala Arg His Thr Gly Lys
 3250 3255 3260
 Val Val Leu Thr Met Pro Ser Gly Leu Asp Pro Glu Gly Thr Val Leu
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 Val Gly Glu Trp Gly Val Arg Arg Leu Leu Leu Val Ser Arg Arg Gly
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 Thr Asp Ala Pro Gly Ala Gly Glu Leu Val His Glu Leu Glu Ala Leu
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 Gly Ala Asp Val Ser Val Ala Ala Cys Asp Val Ala Asp Arg Glu Ala
 3330 3335 3340
 Leu Thr Ala Val Leu Asp Ser Ile Pro Ala Glu His Pro Leu Thr Ala
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 Val Val His Thr Ala Gly Val Leu Ser Asp Gly Thr Leu Pro Ser Met
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 Phe Leu Leu Asp Glu Leu Thr Ser Thr Pro Gly Tyr Asp Leu Ala Ala
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 Phe Val Met Phe Ser Ser Ala Ala Ala Val Phe Gly Gly Ala Gly Gln
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 Arg Leu Ala Arg Ser Gly Ala Thr Pro Met Asp Ser Glu Leu Thr Leu
 3475 3480 3485
 Ser Leu Leu Asp Ala Ala Met Arg Arg Asp Asp Pro Ala Leu Val Pro
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102

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Thr	His	Glu	Pro	Val	Ala	Ile	Val	Gly	Met	Ala	Cys	Arg	Leu	Pro	Gly	
		35					40					45				
Gly	Val	Ala	Ser	Pro	Glu	Asp	Leu	Trp	Gln	Leu	Val	Ala	Gly	Asp	Gly	
	50					55					60					
Asp	Ala	Ile	Ser	Glu	Phe	Pro	Gln	Asp	Arg	Gly	Trp	Asp	Val	Glu	Gly	
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Leu	Tyr	Asp	Pro	Asp	Pro	Asp	Ala	Ser	Gly	Arg	Thr	Tyr	Cys	Arg	Ser	
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Gly	Gly	Phe	Leu	His	Asp	Ala	Gly	Glu	Phe	Asp	Ala	Asp	Phe	Phe	Gly	
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Ile	Ser	Pro	Arg	Glu	Ala	Leu	Ala	Met	Asp	Pro	Gln	Gln	Arg	Leu	Ser	
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Leu	Thr	Thr	Ala	Trp	Glu	Ala	Ile	Glu	Ser	Ala	Gly	Ile	Asp	Pro	Thr	
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Ala	Leu	Lys	Gly	Ser	Gly	Leu	Gly	Val	Phe	Val	Gly	Gly	Trp	His	Thr	
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Gly	Tyr	Thr	Ser	Gly	Gln	Thr	Thr	Ala	Val	Gln	Ser	Pro	Glu	Leu	Glu	
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Gly	His	Leu	Val	Ser	Gly	Ala	Ala	Leu	Gly	Phe	Leu	Ser	Gly	Arg	Ile	
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Ala	Tyr	Val	Leu	Gly	Thr	Asp	Gly	Pro	Ala	Leu	Thr	Val	Asp	Thr	Ala	
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Cys	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Leu	Ala	Val	Gln	Ala	Leu	Arg	
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Lys	Gly	Glu	Cys	Asp	Met	Ala	Leu	Ala	Gly	Gly	Val	Thr	Val	Met	Pro	
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Asn	Ala	Asp	Leu	Phe	Val	Gln	Phe	Ser	Arg	Gln	Arg	Gly	Leu	Ala	Ala	
				245					250					255		
Asp	Gly	Arg	Ser	Lys	Ala	Phe	Ala	Thr	Ser	Ala	Asp	Gly	Phe	Gly	Pro	
			260					265					270			
Ala	Glu	Gly	Ala	Gly	Val	Leu	Leu	Val	Glu	Arg	Leu	Ser	Asp	Ala	Arg	
		275					280					285				
Arg	Asn	Gly	His	Arg	Ile	Leu	Ala	Val	Val	Arg	Gly	Ser	Ala	Val	Asn	
	290					295					300					
Gln	Asp	Gly	Ala	Ser	Asn	Gly	Leu	Thr	Ala	Pro	His	Gly	Pro	Ser	Gln	
305					310					315					320	
Gln	Arg	Val	Ile	Arg	Arg	Ala	Leu	Ala	Asp	Ala	Arg	Leu	Ala	Pro	Gly	
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Asp	Val	Asp	Val	Val	Glu	Ala	His	Gly	Thr	Gly	Thr	Arg	Leu	Gly	Asp	
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Pro	Ile	Glu	Ala	Gln	Ala	Leu	Ile	Ala	Thr	Tyr	Gly	Gln	Glu	Lys	Ser	
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Ser	Glu	Gln	Pro	Leu	Arg	Leu	Gly	Ala	Leu	Lys	Ser	Asn	Ile	Gly	His	
	370					375					380					
Thr	Gln	Ala	Ala	Ala	Gly	Val	Ala	Gly	Val	Ile	Lys	Met	Val	Gln	Ala	
385					390					395					400	
Met	Arg	His	Gly	Leu	Leu	Pro	Lys	Thr	Leu	His	Val	Asp	Glu	Pro	Ser	
				405					410					415		
Asp	Gln	Ile	Asp	Trp	Ser	Ala	Gly	Thr	Val	Glu	Leu	Leu	Thr	Glu	Ala	
			420					425					430			
Val	Asp	Trp	Pro	Glu	Lys	Gln	Asp	Gly	Gly	Leu	Arg	Arg	Ala	Ala	Val	
		435					440					445				
Ser	Ser	Phe	Gly	Ile	Ser	Gly	Thr	Asn	Ala	His	Val	Val	Leu	Glu	Glu	
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Ala	Pro	Ala	Val	Glu	Asp	Ser	Pro	Ala	Val	Glu	Pro	Pro	Ala	Gly	Gly	
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Gly	Val	Val	Pro	Trp	Pro	Val	Ser	Ala	Lys	Thr	Pro	Ala	Ala	Leu	Asp	
				485					490					495		
Ala	Gln	Ile	Gly	Gln	Leu	Ala	Ala	Tyr	Ala	Asp	Gly	Arg	Thr	Asp	Val	
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Asp	Pro	Ala	Val	Ala	Ala	Arg	Ala	Leu	Val	Asp	Ser	Arg	Thr	Ala	Met	515	520	525
Glu	His	Arg	Ala	Val	Ala	Val	Gly	Asp	Ser	Arg	Glu	Ala	Leu	Arg	Asp	530	535	540
Ala	Leu	Arg	Met	Pro	Glu	Gly	Leu	Val	Arg	Gly	Thr	Ser	Ser	Asp	Val	545	550	555
Gly	Arg	Val	Ala	Phe	Val	Phe	Pro	Gly	Gln	Gly	Thr	Gln	Trp	Ala	Gly	565	570	575
Met	Gly	Ala	Glu	Leu	Leu	Asp	Ser	Ser	Pro	Glu	Phe	Ala	Ala	Ser	Met	580	585	590
Ala	Glu	Cys	Glu	Thr	Ala	Leu	Ser	Arg	Tyr	Val	Asp	Trp	Ser	Leu	Glu	595	600	605
Ala	Val	Val	Arg	Gln	Glu	Pro	Gly	Ala	Pro	Thr	Leu	Asp	Arg	Val	Asp	610	615	620
Val	Val	Gln	Pro	Val	Thr	Phe	Ala	Val	Met	Val	Ser	Leu	Ala	Lys	Val	625	630	635
Trp	Gln	His	His	Gly	Ile	Thr	Pro	Gln	Ala	Val	Val	Gly	His	Ser	Gln	645	650	655
Gly	Glu	Ile	Ala	Ala	Ala	Tyr	Val	Ala	Gly	Ala	Leu	Thr	Leu	Asp	Asp	660	665	670
Ala	Ala	Arg	Val	Val	Thr	Leu	Arg	Ser	Lys	Ser	Ile	Ala	Ala	His	Leu	675	680	685
Ala	Gly	Lys	Gly	Gly	Met	Ile	Ser	Leu	Ala	Leu	Asp	Glu	Ala	Ala	Val	690	695	700
Leu	Lys	Arg	Leu	Ser	Asp	Phe	Asp	Gly	Leu	Ser	Val	Ala	Ala	Val	Asn	705	710	715
Gly	Pro	Thr	Ala	Thr	Val	Val	Ser	Gly	Asp	Pro	Thr	Gln	Ile	Glu	Glu	725	730	735
Leu	Ala	Arg	Thr	Cys	Glu	Ala	Asp	Gly	Val	Arg	Ala	Arg	Ile	Ile	Pro	740	745	750
Val	Asp	Tyr	Ala	Ser	His	Ser	Arg	Gln	Val	Glu	Ile	Ile	Glu	Lys	Glu	755	760	765
Leu	Ala	Glu	Val	Leu	Ala	Gly	Leu	Ala	Pro	Gln	Ala	Pro	His	Val	Pro	770	775	780
Phe	Phe	Ser	Thr	Leu	Glu	Gly	Thr	Trp	Ile	Thr	Glu	Pro	Val	Leu	Asp	785	790	795
Gly	Thr	Tyr	Trp	Tyr	Arg	Asn	Leu	Arg	His	Arg	Val	Gly	Phe	Ala	Pro	805	810	815
Ala	Val	Glu	Thr	Leu	Ala	Val	Asp	Gly	Phe	Thr	His	Phe	Ile	Glu	Val	820	825	830
Ser	Ala	His	Pro	Val	Leu	Thr	Met	Thr	Leu	Pro	Glu	Thr	Val	Thr	Gly	835	840	845
Leu	Gly	Thr	Leu	Arg	Arg	Glu	Gln	Gly	Gly	Gln	Glu	Arg	Leu	Val	Thr	850	855	860
Ser	Leu	Ala	Glu	Ala	Trp	Ala	Asn	Gly	Leu	Thr	Ile	Asp	Trp	Ala	Pro	865	870	875
Ile	Leu	Pro	Thr	Ala	Thr	Gly	His	His	Pro	Glu	Leu	Pro	Thr	Tyr	Ala	885	890	895
Phe	Gln	Thr	Glu	Arg	Phe	Trp	Leu	Gln	Ser	Ser	Ala	Pro	Thr	Ser	Ala	900	905	910
Ala	Asp	Asp	Trp	Arg	Tyr	Arg	Val	Glu	Trp	Lys	Pro	Leu	Thr	Ala	Ser	915	920	925
Gly	Gln	Ala	Asp	Leu	Ser	Gly	Arg	Trp	Ile	Val	Ala	Val	Gly	Ser	Glu	930	935	940
Pro	Glu	Ala	Glu	Leu	Leu	Gly	Ala	Leu	Lys	Ala	Ala	Gly	Ala	Glu	Val	945	950	955
Asp	Val	Leu	Glu	Ala	Gly	Ala	Asp	Asp	Asp	Arg	Glu	Ala	Leu	Ala	Ala	965	970	975
Arg	Leu	Thr	Ala	Leu	Thr	Thr	Gly	Asp	Gly	Phe	Thr	Gly	Val	Val	Ser	980	985	990
Leu	Leu	Asp	Asp	Leu	Val	Pro	Gln	Val	Ala	Trp	Val	Gln	Ala	Leu	Gly	995	1000	1005

Asp	Ala	Gly	Ile	Lys	Ala	Pro	Leu	Trp	Ser	Val	Thr	Gln	Gly	Ala	Val	1010	1015	1020
Ser	Val	Gly	Arg	Leu	Asp	Thr	Pro	Ala	Asp	Pro	Asp	Arg	Ala	Met	Leu	1025	1030	1035
Trp	Gly	Leu	Gly	Arg	Val	Val	Ala	Leu	Glu	His	Pro	Glu	Arg	Trp	Ala	1045	1050	1055
Gly	Leu	Val	Asp	Leu	Pro	Ala	Gln	Pro	Asp	Ala	Ala	Ala	Leu	Ala	His	1060	1065	1070
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Gly	Arg	Arg	Pro	Thr	Arg	Asp	Trp	Gln	Pro	His	Gly	Thr	Val	Leu	Ile	1105	1110	1115
Thr	Gly	Gly	Thr	Gly	Ala	Leu	Gly	Ser	His	Ala	Ala	Arg	Trp	Met	Ala	1125	1130	1135
His	His	Gly	Ala	Glu	His	Leu	Leu	Leu	Val	Ser	Arg	Ser	Gly	Glu	Gln	1140	1145	1150
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Glu	Asp	Ile	Ala	Arg	Ile	Leu	Gly	Ala	Lys	Thr	Ser	Gly	Ala	Glu	Val	1220	1225	1230
Leu	Asp	Asp	Leu	Leu	Arg	Gly	Thr	Pro	Leu	Asp	Ala	Phe	Val	Leu	Tyr	1235	1240	1245
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Pro	Met	Ser	Pro	Asp	Arg	Ala	Leu	Asp	Glu	Leu	Ala	Lys	Ala	Leu	Ser	1315	1320	1325
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Pro	Glu	Ala	Arg	Gln	Ala	Leu	Ala	Ala	Pro	Val	Gly	Ala	Pro	Ala	Pro	1365	1370	1375
Gly	Asp	Ala	Ala	Val	Ala	Pro	Thr	Gly	Gln	Ser	Ser	Ala	Leu	Ala	Ala	1380	1385	1390
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Val	Arg	Thr	His	Ala	Ala	Ala	Val	Leu	Gly	His	Ser	Ser	Pro	Asp	Arg	1410	1415	1420
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Ala	Val	Gln	Leu	Arg	Asn	Gln	Leu	Ser	Thr	Val	Val	Gly	Asn	Arg	Leu	1445	1450	1455
Pro	Ala	Thr	Thr	Val	Phe	Asp	His	Pro	Thr	Pro	Ala	Ala	Leu	Ala	Ala	1460	1465	1470
His	Leu	His	Glu	Ala	Tyr	Leu	Ala	Pro	Ala	Glu	Pro	Ala	Pro	Thr	Asp	1475	1480	1485
Trp	Glu	Gly	Arg	Val	Arg	Arg	Ala	Leu	Ala	Glu	Leu	Pro	Leu	Asp	Arg	1490	1495	1500

Leu Arg Asp Ala Gly Val Leu Asp Thr Val Leu Arg Leu Thr Gly Ile
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<213> Streptomyces venezuelae

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Gly Ile Arg Ser Pro Glu Asp Leu Trp Asp Ala Val Ala Ala Gly Lys
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Asp Leu Val Ser Glu Val Pro Glu Glu Arg Gly Trp Asp Ile Asp Ser
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Leu Tyr Asp Pro Val Pro Gly Arg Lys Gly Thr Thr Tyr Val Arg Asn
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Ala Ala Phe Leu Asp Asp Ala Ala Gly Phe Asp Ala Ala Phe Phe Gly
100      105      110
Ile Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln Arg Gln Leu
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Leu Glu Ala Ser Trp Glu Val Phe Glu Arg Ala Gly Ile Asp Pro Ala
130      135      140
Ser Val Arg Gly Thr Asp Val Gly Val Tyr Val Gly Cys Gly Tyr Gln
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Asp Tyr Ala Pro Asp Ile Arg Val Ala Pro Glu Gly Thr Gly Gly Tyr
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Val Val Thr Gly Asn Ser Ser Ala Val Ala Ser Gly Arg Ile Ala Tyr
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Ser Leu Gly Leu Glu Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser
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Ser Ser Leu Val Ala Leu His Leu Ala Leu Lys Gly Leu Arg Asn Gly
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Asp Cys Ser Thr Ala Leu Val Gly Gly Val Ala Val Leu Ala Thr Pro
225      230      235      240
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Arg Thr Lys Gly Phe Ala Ser Ala Ala Asp Gly Leu Ala Trp Gly Glu
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Gly	Ala	Ser	Asn	Gly	Leu	Thr	Ala	Pro	His	Gly	Pro	Ser	Gln	Gln	His
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Leu	Ile	Arg	Gln	Ala	Leu	Ala	Asp	Ala	Arg	Leu	Thr	Ser	Ser	Asp	Val
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Asp	Val	Val	Glu	Gly	His	Gly	Thr	Gly	Thr	Arg	Leu	Gly	Asp	Pro	Ile
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Pro	Trp	Pro	Val	Ser	Ala	Lys	Thr	Ser	Ala	Ala	Leu	Asp	Ala	Gln	Ile
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<211> 928

<212> PRT

<213> Streptomyces venezuelae

<400> 41

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Leu	Asp	Ala	Ser	Ala	Ala	Gly	Asp	Gly	Thr	Leu	Leu	Leu	Val	Ser	Gly
			20					25					30		
Pro	Ala	Gly	Ser	Gly	Lys	Thr	Glu	Leu	Leu	Arg	Ser	Leu	Arg	Arg	Leu
		35					40					45			
Ala	Ala	Glu	Arg	Glu	Thr	Pro	Val	Trp	Ser	Val	Arg	Ala	Leu	Pro	Gly
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Asp	Arg	Asp	Ile	Pro	Leu	Gly	Val	Leu	Cys	Gln	Leu	Leu	Arg	Ser	Ala
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Glu	Gln	His	Gly	Ala	Asp	Thr	Ser	Ala	Val	Arg	Asp	Leu	Leu	Asp	Ala
			85						90					95	
Ala	Ser	Arg	Arg	Ala	Gly	Asn	Leu	Thr	Ser	Pro	Ala	Asp	Ala	Pro	Leu
			100					105					110		
Arg	Val	Asp	Glu	Thr	His	Arg	Leu	His	Asp	Trp	Leu	Leu	Ser	Val	Ser
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Arg	Arg	Thr	Pro	Phe	Leu	Val	Ala	Val	Asp	Asp	Leu	Thr	His	Ala	Asp
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Thr	Ala	Ser	Leu	Arg	Phe	Leu	Leu	Tyr	Cys	Ala	Ala	His	His	Asp	Gln
145					150				155					160	
Gly	Gly	Ile	Gly	Phe	Val	Met	Thr	Glu	Arg	Ala	Ser	Gln	Arg	Ala	Gly
			165					170						175	
Tyr	Arg	Val	Phe	Arg	Ala	Glu	Leu	Leu	Arg	Gln	Pro	His	Cys	Arg	Asn
		180					185						190		

Met	Trp	Leu	Ser	Gly	Leu	Pro	Pro	Ser	Gly	Val	Arg	Gln	Leu	Leu	Ala	195	200	205
His	Tyr	Tyr	Gly	Pro	Glu	Ala	Ala	Glu	Arg	Arg	Ala	Pro	Ala	Tyr	His	210	215	220
Ala	Thr	Thr	Gly	Gly	Asn	Pro	Leu	Leu	Leu	Arg	Ala	Leu	Thr	Gln	Asp	225	230	235
Arg	Gln	Ala	Ser	His	Thr	Thr	Leu	Gly	Ala	Ala	Gly	Gly	Asp	Glu	Pro	245	250	255
Val	His	Gly	Asp	Ala	Phe	Ala	Gln	Ala	Val	Leu	Asp	Cys	Leu	His	Arg	260	265	270
Ser	Ala	Glu	Gly	Thr	Leu	Glu	Thr	Ala	Arg	Trp	Leu	Ala	Val	Leu	Glu	275	280	285
Gln	Ser	Asp	Pro	Leu	Leu	Val	Glu	Arg	Leu	Thr	Gly	Thr	Thr	Ala	Ala	290	295	300
Ala	Val	Glu	Arg	His	Ile	Gln	Glu	Leu	Ala	Ala	Ile	Gly	Leu	Leu	Asp	305	310	315
Glu	Asp	Gly	Thr	Leu	Gly	Gln	Pro	Ala	Ile	Arg	Glu	Ala	Ala	Leu	Gln	325	330	335
Asp	Leu	Pro	Ala	Gly	Glu	Arg	Thr	Glu	Leu	His	Arg	Arg	Ala	Ala	Glu	340	345	350
Gln	Leu	His	Arg	Asp	Gly	Ala	Asp	Glu	Asp	Thr	Val	Ala	Arg	His	Leu	355	360	365
Leu	Val	Gly	Gly	Ala	Pro	Asp	Ala	Pro	Trp	Ala	Leu	Pro	Leu	Leu	Glu	370	375	380
Arg	Gly	Ala	Gln	Gln	Ala	Leu	Phe	Asp	Asp	Arg	Leu	Asp	Asp	Ala	Phe	385	390	395
Arg	Ile	Leu	Glu	Phe	Ala	Val	Arg	Ser	Ser	Thr	Asp	Asn	Thr	Gln	Leu	405	410	415
Ala	Arg	Leu	Ala	Pro	His	Leu	Val	Ala	Ala	Ser	Trp	Arg	Met	Asn	Pro	420	425	430
His	Met	Thr	Thr	Arg	Ala	Leu	Ala	Leu	Phe	Asp	Arg	Leu	Leu	Ser	Gly	435	440	445
Glu	Leu	Pro	Pro	Ser	His	Pro	Val	Met	Ala	Leu	Ile	Arg	Cys	Leu	Val	450	455	460
Trp	Tyr	Gly	Arg	Leu	Pro	Glu	Ala	Ala	Asp	Ala	Leu	Ser	Arg	Leu	Arg	465	470	475
Pro	Ser	Ser	Asp	Asn	Asp	Ala	Leu	Glu	Leu	Ser	Leu	Thr	Arg	Met	Trp	485	490	495
Leu	Ala	Ala	Leu	Cys	Pro	Pro	Leu	Leu	Glu	Ser	Leu	Pro	Ala	Thr	Pro	500	505	510
Glu	Pro	Glu	Arg	Gly	Pro	Val	Pro	Val	Arg	Leu	Ala	Pro	Arg	Thr	Thr	515	520	525
Ala	Leu	Gln	Ala	Gln	Ala	Gly	Val	Phe	Gln	Arg	Gly	Pro	Asp	Asn	Ala	530	535	540
Ser	Val	Ala	Gln	Ala	Glu	Gln	Ile	Leu	Gln	Gly	Cys	Arg	Leu	Ser	Glu	545	550	555
Glu	Thr	Tyr	Glu	Ala	Leu	Glu	Thr	Ala	Leu	Leu	Val	Leu	Val	His	Ala	565	570	575
Asp	Arg	Leu	Asp	Arg	Ala	Leu	Phe	Trp	Ser	Asp	Ala	Leu	Leu	Ala	Glu	580	585	590
Ala	Val	Glu	Arg	Arg	Ser	Leu	Gly	Trp	Glu	Ala	Val	Phe	Ala	Ala	Thr	595	600	605
Arg	Ala	Met	Ile	Ala	Ile	Arg	Cys	Gly	Asp	Leu	Pro	Thr	Ala	Arg	Glu	610	615	620
Arg	Ala	Glu	Leu	Ala	Leu	Ser	His	Ala	Ala	Pro	Glu	Ser	Trp	Gly	Leu	625	630	635
Ala	Val	Gly	Met	Pro	Leu	Ser	Ala	Leu	Leu	Leu	Ala	Cys	Thr	Glu	Ala	645	650	655
Gly	Glu	Tyr	Glu	Gln	Ala	Glu	Arg	Val	Leu	Arg	Gln	Pro	Val	Pro	Asp	660	665	670
Ala	Met	Phe	Asp	Ser	Arg	His	Gly	Met	Glu	Tyr	Met	His	Ala	Arg	Gly	675	680	685

Arg Tyr Trp Leu Ala Thr Gly Arg Leu His Ala Ala Leu Gly Glu Phe
 690 695 700
 Met Leu Cys Gly Glu Ile Leu Gly Ser Trp Asn Leu Asp Gln Pro Ser
 705 710 715 720
 Ile Val Pro Trp Arg Thr Ser Ala Ala Glu Val Tyr Leu Arg Leu Gly
 725 730 735
 Asn Arg Gln Lys Ala Arg Ala Leu Ala Glu Ala Gln Leu Ala Leu Val
 740 745 750
 Arg Pro Gly Arg Ser Arg Thr Arg Gly Leu Thr Leu Arg Val Leu Ala
 755 760 765
 Ala Ala Val Asp Gly Gln Gln Ala Glu Arg Leu His Ala Glu Ala Val
 770 775 780
 Asp Met Leu His Asp Ser Gly Asp Arg Leu Glu His Ala Arg Ala Leu
 785 790 795 800
 Ala Gly Met Ser Arg His Gln Gln Ala Gln Gly Asp Asn Tyr Arg Ala
 805 810 815
 Arg Met Thr Ala Arg Leu Ala Gly Asp Met Ala Trp Ala Cys Gly Ala
 820 825 830
 Tyr Pro Leu Ala Glu Glu Ile Val Pro Gly Arg Gly Gly Arg Arg Ala
 835 840 845
 Lys Ala Val Ser Thr Glu Leu Glu Leu Pro Gly Gly Pro Asp Val Gly
 850 855 860
 Leu Leu Ser Glu Ala Glu Arg Arg Val Ala Ala Leu Ala Ala Arg Gly
 865 870 875 880
 Leu Thr Asn Arg Gln Ile Ala Arg Arg Leu Cys Val Thr Ala Ser Thr
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<210> 53

<211> 281

<212> PRT

<213> Streptomyces venezuelae

<400> 53

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Ala	Gly	Gly	Ser	Ala	Ser	Tyr	Phe	Arg	Phe	Ser	Glu	Glu	Leu	His		35	40	45	
Pro	Ser	Val	Glu	Ala	Leu	Ser	Val	Gln	Tyr	Pro	Gly	Arg	Gln	Asp	Arg	50	55	60	
Arg	Ala	Glu	Pro	Cys	Leu	Glu	Ser	Val	Glu	Glu	Leu	Ala	Glu	His	Val	65	70	75	80
Val	Ala	Ala	Thr	Glu	Pro	Trp	Trp	Gln	Glu	Gly	Arg	Leu	Ala	Phe	Phe	85	90	95	
Gly	His	Ser	Leu	Gly	Ala	Ser	Val	Ala	Phe	Glu	Thr	Ala	Arg	Ile	Leu	100	105	110	
Glu	Gln	Arg	His	Gly	Val	Arg	Pro	Glu	Gly	Leu	Tyr	Val	Ser	Gly	Arg	115	120	125	
Arg	Ala	Pro	Ser	Leu	Ala	Pro	Asp	Arg	Leu	Val	His	Gln	Leu	Asp	Asp	130	135	140	
Arg	Ala	Phe	Leu	Ala	Glu	Ile	Arg	Arg	Leu	Ser	Gly	Thr	Asp	Glu	Arg	145	150	155	160
Phe	Leu	Gln	Asp	Asp	Glu	Leu	Leu	Arg	Leu	Val	Leu	Pro	Ala	Leu	Arg	165	170	175	
Ser	Asp	Tyr	Lys	Ala	Ala	Glu	Thr	Tyr	Leu	His	Arg	Pro	Ser	Ala	Lys	180	185	190	
Leu	Thr	Cys	Pro	Val	Met	Ala	Leu	Ala	Gly	Asp	Arg	Asp	Pro	Lys	Ala	195	200	205	
Pro	Leu	Asn	Glu	Val	Ala	Glu	Trp	Arg	Arg	His	Thr	Ser	Gly	Pro	Phe	210	215	220	
Cys	Leu	Arg	Ala	Tyr	Ser	Gly	Gly	His	Phe	Tyr	Leu	Asn	Asp	Gln	Trp	225	230	235	240
His	Glu	Ile	Cys	Asn	Asp	Ile	Ser	Asp	His	Leu	Leu	Val	Thr	Arg	Gly	245	250	255	
Ala	Pro	Asp	Ala	Arg	Val	Val	Gln	Pro	Pro	Thr	Ser	Leu	Ile	Glu	Gly	260	265	270	
Ala	Ala	Lys	Arg	Trp	Gln	Asn	Pro	Arg								275	280		

B'
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